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THE ADVOCATE OF INDUSTRY AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

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THE NEW YORK
SCIENTIFIC AMERICAN:
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RUFUS PORTER, EDITOR.

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☞ *See Advertisement on last page.*

A General Evaporation.

I had a very awful dream—
I thought that I was dry,
And not a drop of water, or
Of liquor stuff, was nigh;
The cisterns were exhausted, and,
The clouds they wouldn't soak;
Umbrellas couldn't get borrowed, and
E'en bullfrogs couldn't croak.

The Mississippi's bed was dry,
And bare the snags all stood;
It would have been a comfort to
Have seen a little mud;
But arid all, and on I went,
Just raging like a wolf,
Till I got down by the Balize—
Out—out into the Gulf!

Still not a drop of water—no—
And onward still I went,
Round the *Tortugas*, for the broad
And deep Atlantic bent;
Its buried rocks and chasms lay
All parched, exposed and bare—
I plunged down each abyss, but still
There was no water there!

Onwards I went, unto the north,
Passed Greenland in a trice—
I longed to dash my brains out could
I find a berg of ice—
But no, 'twas more than fever heat
While standing on the pole—
There wasn't e'n an icicle
Round Captain Symms's 'Hole!'

The blazing sun, that wouldn't sink,
Whirled round in the horizon—
Yet nothing that would melt, till scorched
Was all I set my eyes on.
A struggle—grab—oh, what relief:—
Delight was never richer—
Did you ever wake up in the night,
And feel round for the pitcher?

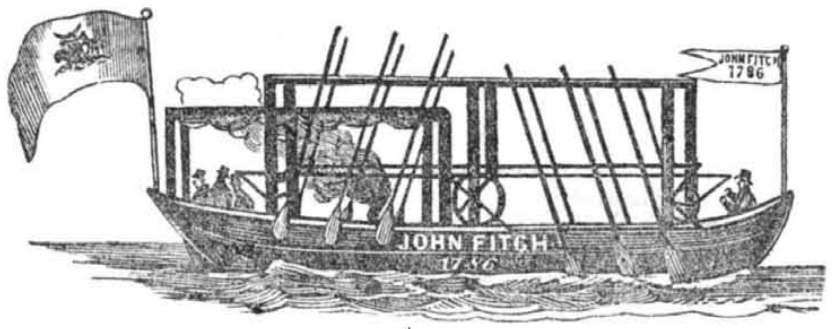
Slaves in China.

The Chinese deal largely in slaves, not from Africa, but purchased from the families of their own countrymen. The Chinese slaves are seldom driven to incessant toil, but are treated in the manner of hierd servants, and are restrained by a sense of justice and propriety from leaving the service of their owners. The supply of slaves to meet the demand is, generally speaking, from such sources as the following: A debtor, hard pushed by his creditor, will sometimes *sell* his wife or children, or even himself, (having no family,) into slavery, to pay his debts. Orphan children, left destitute, are often sold into slavery, merely to procure their support. Parents or guardians will often sell those under their care, either to get rid of the charge, or to make a little money — Very large numbers of slaves are those who, in iniancy, or too young to remember, were kidnapped from their friends. For many make it a business to procure *young* children, and maintain them till adult age, either to sell, or make them minister to the carnal appetites of the people.

Buying a Shot.

One of the foreign papers mentions that, lately, at Baden-Baden, an Englishman after discharging his own pistol without doing execution, purchased his adversary's shot for £1,000!

FITCH'S STEAMBOAT.



To this individual belongs the honor of having constructed the fir t steamboat in this country. Although this honor has so generally been ascribed to Robert Fulton, yet it is a well known fact, that *twenty years* before the great experiment of Fulton and Livingston on the Hudson, a steamboat was constructed and put in operation in Philadelphia, under the sole direction of a then obscure and still almost unknown individual. This person was John Fitch. He was born in the south part of East Windsor, near the East Hartford line, on what is now called the *old road*. He was apprenticed as a watch and clock maker, to Mr. Cheney, who carried on the business in the eastern part of East Hartford, now Manchester. When New Jersey was overrun by the British troops, Mr. Fitch removed into the interior of Pennsylvania, where he employed himself in repairing arms for the Continental army.

In the year 1785, Mr. Fitch conceived the project of propelling a steam vessel by the force of condensed vapor. 'When the idea occurred to him, as he himself tells us, he did not know there was such a thing as a steam engine in existence.' In 1778, he obtained a patent for the application of steam to navigation. By unwearied exertion he succeeded in interesting about twenty persons in his plan, and inducing them to take shares of $50 each. A boat was built in 1787. A mile was measured off in Front or Water street, and the boat was found to go at the rate of eight miles an hour. It afterwards went eighty miles a day. The Governor and Council of Pennsylvania were so much gratified with the experiment, that they presented them with a superb silk flag. About this time, the company sent Mr. Fitch to France, at the request of Mr. Vail, our consul at L'Orient, who was one of the company, and wished to introduce the invention into France. Being in the midst of revolutions in that country, and as no men could be obtained for the purpose of building boats, Mr. Fitch returned. 'Mr. Vail afterwards *subjected to the examination of Mr. Fulton*, when in France, the papers and designs of the steamboat appertaining to the company.' In 1790 he made an alteration in his boat, and she performed tolerably well, but still it required further alteration. Mr. Fttch, however, was not able to obtain the necessary means, in order to perfect his invention.

The conviction of Fitch respecting the power of steam continued firm. In June, 1792, he addressed a letter to Mr. Rittenhouse, one of the share-holders; speaking of steam power, he said—'This, sir, will be the *mode of crossing the Atlantic in time*, whether I shall bring it to perfection or not.' He complains of his poverty, and, to raise funds, he urges Mr. Rittenhouse to buy his lands in Kentucky, that he might have the honor of enabling him to complete the great undertaking.

Upon this occasion, he called upon a smith who had worked upon his boat, and after dwelling for some time upon his favorite topic, concluded with these words: 'Well, gentlemen, although I shall not live to see the time, you will, when steamboats will be preferred to all other means of conveyance, and especially for passengers; and they will be particularly useful in the navigation of the river Mississippi.' He retired, when a person present observed, *'Poor fellow, what a pity it is he is crazy!'*

'The distress of mind and mortification he suffered, from the failure of his protracted exertions, and his poverty, were too much for him; and to drown his reflection, he had recourse to the common but deceptive remedy, strong drink, in which he indulged to excess; and, retiring to Pittsburg, he ended his days by plunging into the Alleghany.' He had filled several small MS. books with personal and general narrative, more or less connected with his great scheme, and which he bequeathed to the Philadelphia Library, with the proviso that they were to remain closed for thirty years. The books were opened in due time, and were found to contain a minute account of his perplexities and disappointments.

'Of the boldness of his conception,' (says a writer in the Mechanics' Magazine, January, 1836,) 'and the perseverance with which he followed it up, there can be but one opinion; and had fortune attended his efforts, and his means been equal to the accomplishment of his designs, there can be no doubt that he would now hold, undisputed, the honor of having given to the country this most noble and useful invention.'—[Connecticut Historical Collections.

Singular National Habit.

The Zulus, a tribe in Africa, described by Rev. A. Grant, in his missionary travels, depend upon the soil for subsistance, and go entirely naked. 'Licentiousness is wholly unknown among them—I have been among them for three years—seen them on all occasions—have many a time seen hundreds of males and females, huddled together in perfect nakedness, but never saw the least manifestation of licentious feeling: and they are as remarkable for their intellectual activity and aptitude as for chastity. It is a common thing for the children, in the course of fifteen months from the first time they ever saw a letter, to learn to read well in the New Testament, and to solve questions in the fundamental rules of Arithtic. On leaving them, I asked what I should bring them when I retuned, and they all cried at once, "Bring us more teachers! more books!"'

Temporary Humility.

Says the Albany Knickerbocker, 'There is nothing takes the starch out of an aristocrat so soon as to nominate him to some office that comes before the people. He's as fawning as a dog, and as polite and neighborly as French dancing masters.' Yes, but let him once get a permanent office,—that of a Judge, or Postmaster, for instance,—and how quickly they will affect hateur and independence of justice and humanity, if not of common sense.

At a trial before a justice in Vede Pache, Louisiana, the justice, after the case was submitted, asked whether any of the jury could read or write. It was proved, on examination, that not one could do either.

A LIST OF PATENTS

Issued from the 20th of July to the 31st of July, 1846, inclusive.

To Evan Backus, of Brooklyn, N. Y., for improvement in Stoves. Patented 28th July, 1846.

To Theodore F. Engelbrecht and George F. Skiff, of Philadelphia, Pa., for improvement in Fish Hooks. Patented 28th July, 1846.

To Smith Groom, of Troy, N. Y., for improvement in Machinery for cutting Threads on Screws and Nuts. Patented 28th July, 1846.

To Elijah H. Danforth, of Busti, N. Y., for improvement in Horse Yokes. Patented 28th July, 1846.

To David Sanders, Senr., of Cincinnati, Ohio, James George Bissett, of Covington, Ky., and Samuel Saunders, of Pittsburgh, Pa., for improvement in the Manufacture of Tyres for Car Wheels. Patented 28th July, 1846.

To Augustus McBurth, of New York City, for improvement in Veneering, (assigned to Timothy R. Hibbard.) Patented 28th July, 1846.

To Samuel Kern, of Strasburg, Va., for improvement in Surveyor's Compasses. Patented 31st July, 1846.

To Samuel Miller and George Roller, of Manchester, P. O., Md., for improvement in Tempering Clay. Patented 31st July, 1846.

To Lorenzo B. Glover, of Easton, Ct., for improvement in Corn Shellers. Patented 31st July, 1846.

To Jonathan Bennet, of Amenia, N. Y., for improvement in Shingle Machines. Patented 31st July, 1846.

To Jason L. Burdick, of Norwich, N. Y., for improvement in Heating Water in Vats.—Patented 31st July, 1846.

To Gibbons Gray, of Westchester, Pa., for improvement in Holding up the Tails of Horses after Nicking. Patented 31st of July, 1846

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ADDITIONAL IMPROVEMENTS.

To Nathan Post, of Madrid, N. Y., for improvement in Horse Hames. Patented 14th July, 1846.

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DESIGNS.

To John F. Rathbone, of Albany, N. Y., for Design for Box Stove. Patented 10th July, 1846.

To John F. Rathbone, of Albany, N. Y., for Design for Air Tight Stoves. Patented 10th July, 1846.

To Adam Hampton, of New York City, for Design for Parlor Grate. Patented 10th July, 1846.

To John E. Thomas, of Albany, N. Y., for Design for Air Tight Cooking Stoves, (assigned to John F. Rathbone.) Patented 10th July, 1846.

To John F. Rathbone, of Albany, N. Y., for Design for Cooking Stove. Patented 10th July, 1846.

To John Morrison, of Troy, N. Y., for Design for Cooking Stoves. Patented 10th July, 1846.

To Robert Barber and Michael Hoffman, of Bridgeton, N. J., for Design for Stoves. Patented 10th July, 1846.

To L. Gravline, of Albany, N. Y., for Design for Cooking Stoves, (assigned to Jesse C. Potts.) Patented 10th July, 1846.

To William Shaw, of Albany, N. Y., for Design for Stoves, (assigned to John N. Wilder, Wm. E. Bleecker, and Samuel D. Vose.) Patented 10th July, 1846.

To Michael Gibney, of New York City, for Design for Spoons, Forks, &c. Patented 10th July, 1846.

To Nathaniel Batchelor and Henry Biggins, of New York City, for Design for Clock Frames, (assigned to Nathaniel Batchelor, by said Henry Biggins.) Patented 10th July, 1846.

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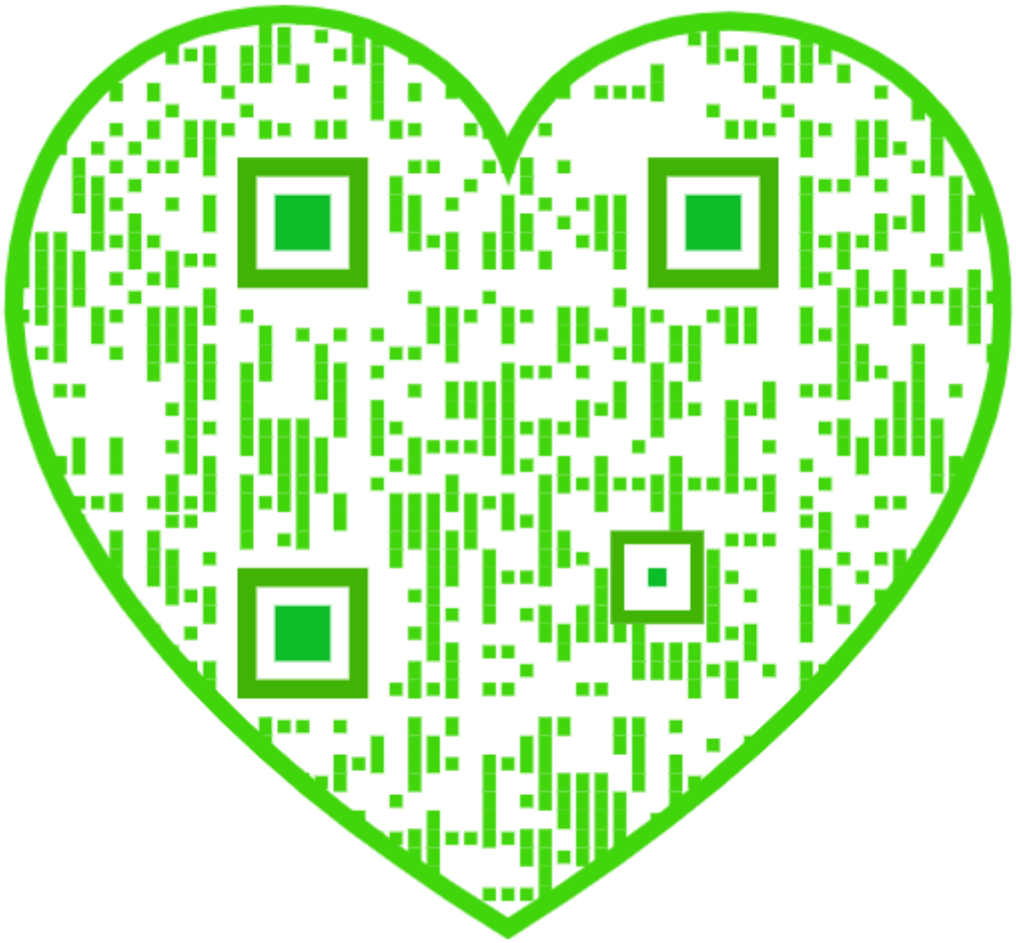

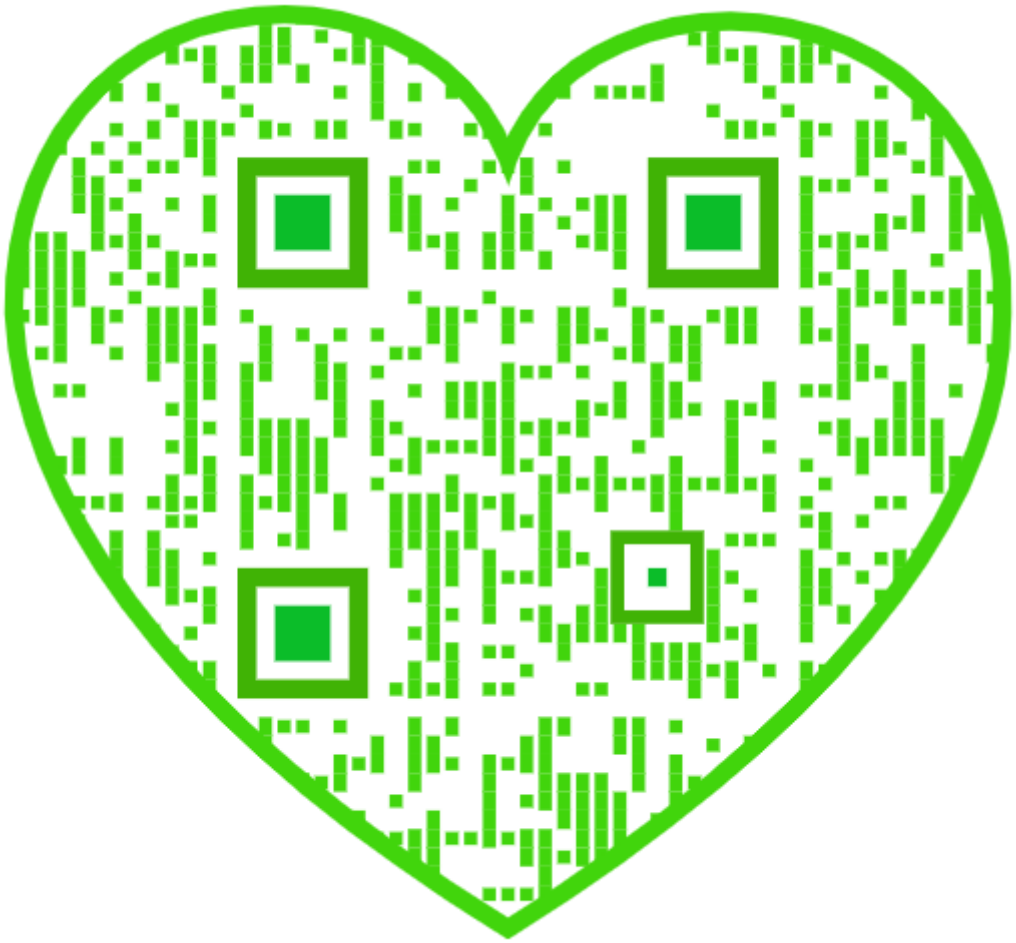

Nothing at All.

When statesmen, involved in a cloud of kind words,
Look large through the mist, how we stare and admire!
But feathers *alone* do not constitute birds,
And promising statesmen all fruitless expire: —
Compared with its coatings an almond is small,
But *their* inner substance—is nothing at all.

When self-titled patriots hoarsely hold forth,
Till law seems oppression, and government crime;
Their lips against office o'erflowing with wrath,
The heart crying, 'Wanted, a place!' all the time;
Their love for dear country, howe'er they may bawl,
May safely be rated at—nothing at all!

When certain philanthropists, feigning a flame,
Look hot with humanity, melting with sighs,
You shall hear them talk volumes in Charity's name,
But, touch not their purse—or philanthropy dies!
Such love for one's fellows we know what to call—
The sum of the matter is—nothing at all!

When fair-weather friends, *swallows*, looking like *men*,
Take flight with your summer—for such is their creed,—
Forget, or neglect you, or, with half a spin,
Revolve on their heels at your least hint of *need*,—
You well may exclaim, with some risings of gall,
'Such *vol-au-vent* friendship is—nothing at all!'

Yet statesmen, philanthropists, patriots, friends,
Are *sometimes*, not shadows, but best of true bloods:
They *do* in odd places spring up for good ends,
And even a palace not always excludes,
To searching for such let us studiously fall,
And never, when found, deem *them*—nothing at all!

Trinity Church.

By a clause in the New State Constitution, as voted by the late State Convention, this aristocratic association is to be secure in the possession of its millions, which are, by many, supposed to belong to other people. A contemporary suggests that the church should present fifty thousand dollars to each member of the convention: but the Church understands these things better: generosity towards members of a popular convention, would be much more effectual at the commencement of the session than at the close.

The new Pope.

An English letter writer says that the new Pope is continuing to work his wonders in Italy. He may be set down as the first since the days of the Apostles, who has wrought a miracle, for it certainly is one, to see every body so pleased with Rome. Several of his less liberal cardinals and friends, have remonstrated with him, saying the people would by and by ask him for a new constitution if he continued his indulgence—his reply was, 'and if they should—ought I not to give it them if it would make them happier?'

Enormous Trees.

It is stated in a late number of the North American Review that there are cypress trees in Mexico, whose ages have been ascertained to be upward of three thousand years. A cypress stands at Montezuma whose girt is 45 feet. But the largest known stands at Santa Maiara del Thule, is *forty feet in diameter*, and is apparently healthy and sound.

Manhattan Island, on which the city of New York stands, was bought from the Indians in 1626, for twenty four dollars!

Perpetual Motion.

The Hartford Times speaks of the exhibition in that city, of a machine in which a wheel,—a light fly-wheel, of course,—is kept in motion by the expansion and contraction of a quantity of oil, affected by the natural changes in the temperature of the atmosphere. There have been several machines constructed to operate on the same principle, within the last ten years, the best of which worked by expansion and contraction of a quantity of atmospheric air, which is much more sensitive or easily affected by changes of temperature, than liquid substances. But these inventions do not approach the self-moving principle which is required to constitute what is understood by *perpetual motion*. A windmill or water wheel, moved by natural currents, are as much entitled to the appellation of 'perpetual motion' as a machine moved by the natural changes of temperature of the air.

Firing of the Great Cannon.

The Mammoth Mortar Cannon lately cast at Alger's Foundry, for Boston Harbor, was fired a few times at South Boston Point on Thursday of last week. The Boston Post says shells 12 inches in diameter and 180 pounds in weight, were thrown various distances. With a charge of 20 pounds of powder, 20 seconds fuse, at an elevation of 22 degrees, a shell was thrown 2 1-2 miles, and buried deep in the earth at Squantum. A ricochet shot was tried with a 10 second fuse, 20 pounds powder charge, and 7 pounds in the shell. It dashed through and over the water at an awful rate, and exploded at a distance of about two miles in the water, throwing the fragments several hundred yards in every direction. Next week the gun will be tried with higher charges of powder. The regular service charge is 25 pounds, which, at a due elevation, will project the shell somewhere between 3 1-2 and 4 miles.

Fremont Corn.

There is a kind of Corn which grows spontaneously on or about the Rocky Mountains, which is similar to the common Indian corn, with the peculiarity of having each kernel enveloped in a husk. Capt. Fremont brought home some of this corn, and a few kernels were planted near Jersey City, from which several ears have been produced, and are now on exhibition in the horticultural department of the Fair of the American Institute.

Price of News in England.

A fee of three pence is charged to read the morning papers in many London hotels, unless you take some refreshments. At the minor coffee shops, on calling for half a pint of coffee, worth three half pence, all the morning papers can be read; and there are some coffee shops, where a penny paid at the bar suffices to secure all the papers. In Liverpool, there are several reading rooms for mechanics, the entrance to which is a penny a day.

Don't Split the Church.

It is represented in some of the temperance papers, that certain church members are averse to the introduction of temperance principles, lest it should *split the church*. The sentiment thus expressed is, that it is better to indulge drunkenness and other flagrant sins *in* the church, than to reduce the number of tax paying members.

Worthy of Women.

It was stated, not long since, in a temperance lecture, by Dr. Jewett, that among all the petitions that have been presented from time to time, praying for the repeal of laws prohibiting or restricting the sale of ardent spirits, not one has been found inscribed with the name of a woman!

An Extraordinary Meteor.

A large luminous body was seen shooting rapidly through the air at midday, in Virginia, a few days since. It was seen by many persons in different counties, and its appearance was accompanied with a loud rumbling sound, terminated by an apparent explosion.

Crooked.

Late English papers mention the importation from Constantinople, of a cargo of sixty thousand sheep horns.

Another Railroad Improvement.

A gentleman from Syracuse, N. Y., informs us that an important improvement has been made, by means of which engines and cars ascend inclined plains with 150 to 200 feet of elevation per mile, with certainty and safety. We are promised a description with an engraving of the machine, which will appear in this paper in two or three weeks.

It.

The pronoun IT is a comical word—
IT is sometims amusing, *it* is often absurd;
IT is large, *it* is small, *it* is round, *it* is square;
IT rains and *it* snows; *it* is foul, *it* is fair;
IT is black, *it* is white; *it* is long, *it* is short;
IT is everything almost, and then *it* is nought.
IT is true; *it* is a fib: *it* isn't! *it* is,
Indeed the word *it* is a humbug and—QUIZ.

An Old House.

There is still standing in the town of Deerfield, Msss., the only dwelling house which was left standing in 1704, when the settlement was destroyed by the Indians. It is supposed to be at least 160 years old.

The Ship Constitution—Old Ironsides,— has made a very pleasant trip round the world, having sailed 53,000 miles in about five hundred days.

We have received from the publishers, Messrs. Clark & Austin, a very neat little work, entitled 'Prince's Manual of Roses;' and, from its contents, we should judge it merits more than a usual notice from the florists. It not only gives a complete list and history of every species of the rose, but also contains valuable hints on its culture. For sale by the publishers, wholesale and retail, at 130 Fulton street.

AN ALMANAC for 1847, has been published in Cincinnati, the calculations of which were made by the Vermont boy, Truman H. Safford, ten years of age.

A chimney 120 feet high, 12 feet 9 inches square at the base, and employing 150,000 bricks, has been recently built by the Carpet Manufacturing Company, at Lowell, Mass.

A rich vein of silver has been discovered on a small island in Lake Superior, near Agate Harbor. It belongs to the Cypress River Mining Company.

The Boston Bee states that the U. S. Hotel in that city numbers upward of 700 inmates, equal to the number of boarders in the St. Charles, New Orleans. It *m-a-y* be so.

It is said that an old ship, valued at $6000, that has been running from New Orleans to Brazos for a few months, has already remitted to her owners $10,000.

An editor says the reason why the people in Rhode Island did not feel the earthquake was because the State isn't large enough for an earthquake to shake in.

A colored student has, after much opposition, been admitted to the Berkshire Medical Institution, Mass.

RAILROAD INTELLIGENCE.

Harlem Railroad.

It is expected that within six months the Harlem road will be so extended as to connect with the Albany and West Stockbridge road, thus opening a direct railroad communication between this city and Albany. This, however, will not long prevent the construction of a railroad on the river route.

New York and Erie Railroad.

The Commissioners have decided to locate the route for this road through Pennsylvania, instead of going over the high grades of Broome and Sullivan Counties. This decision is of great importance to the Company, as it will entitle them to commence work immediately along the whole line of the road, on the most favorable route.

Syracuse and Utica Railroad.

The directors of this road have decided to relay the track with heavy H rail, weighing 56 lbs. to the yard. It is contemplated to put down a portion of the heavy rail this fall, and the remainder next summer. A new track alongside of the old one has been graded, and the timber necessary for laying it is already on the ground.

Whitehall and Saratoga Railroda.

It is stated in the Montreal Courier that there is at present a fair prospect that this work will soon be put in progress of construction, from Whitehall to Montreal; a part of the stock having been taken up in the latter city.

New York and New Haven Railroad.

The citizens of New Haven are determined on having a railroad direct from New York to that city, though they cannot expect to draw the principal travel between New York and Boston to that route.

Norwich and Worcester Railroad.

The increase of earnings on this road shows a highly favorable condition of its business.—The entire gain thus far, independent of the Steamer's earnings, is said to be $12,000, and the business is rapidly increasing.

Boston and Maine Railroads.

By the annual report read before a recent meeting of the stockholders of this road, it appears that the receipts for the previous three months exceed those of the corresponding time last year, by $30,000.

Boston and Fall River.

The section between Randolph and Fall River, Mass., is expected to be completed about the 1st of November. The whole distance from Boston to Randolph, is in operation.

Walpole Branch.

Most of the stock is taken up for a branch road from the Boston and Providence railroad to the village of Walpole, N. H.

The Pittsfield and North Adams Railroad,

Is nearly completed, and will very soon be in full operation. It is intended to extend this road to Bennington, Vt.

Attleboro' and Pawtucket Railroad.

The work on the branch of the Boston and Providence railroad, from Attleborough to a point between Central and Valley Falls, and there forming a junction with the Providence and Worcester railroad, has been progressing for some time past. This branch will accommodate the travel between Boston and Providence generally much better than the old Provdence road to the steamboat landing.

Concord and Lowell Railroad.

We are informed that arrangements are in progress for constructing a railroad from Lowell, Mass., along the banks of the Concord river, to connect the Lowell with the Fitchburg roads. Of course, it will be extended, to connect with the Worcester road at Framington or Westborough, so that the Concord (N. H.) and Lowell travel to New York, might avoid the disagreeables of a cab jaunt through the streets of Boston. A Concord (N. H.) paper remarks that it is the opinion of the friends of the road, that its affairs have been placed on such a footing that the construction of the road between that place and Meredith Bridge, will be entered upon immediately, and that the road will be completed to that point with all due dispatch.

Uniting Railroads.

It is seriously contemplated to unite all the railroads in Boston by a semi-circular sweep of a few miles from East Boston to the Old Colony Road. The most obvious advantage of such an arrangement would be the placing of each of the roads at once upon tide water. We only wonder that some project of uniting these roads has not been accomplished before, though we think it would be much the best way to unite the terminations of the several roads within the city, the cab interest notwithstanding.

Southern Railroad.

By late papers from the south, we are happy to learn that a new interest has lately arisen along the line of the Southern railroad, from Raleigh to Fayetteville, and thence to Cheraw and Camden, S. C., in reference to the extension of the Raleigh and Gaston railroad. This embraces the great connecting link in the Washington route, and thence through to the north, and is a subject of the greatest importance to the southern travel.—[Railroad Jour.

Railroads in Germany.

Letters from Hamburg state that the number of laborers on the railroad from that city to Berlin, which has been about eight thousand, is now increased to ten thousand, and the work is carried on day and night without any interruption. The road is to be entirely finished before the month of December.

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THE GREAT FAIR.

Continued from No. 3.

As a whole the Exhibition is deemed superior to former ones. The place and the weather have conspired to sustain the increasing interest taken in this National Exhibition of the products of American soil and labor. The useful and the ornamental are in pleasing proportion. Increased excellence of workmauship characterises this Fair.

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Wilson's Creasing Machine.—It is like meeting with a tried friend to see an Invention make its appearance at the Fair for the second or third time. On a previous occasion, we spoke favorably of this machine. Mr. Wilson finds the demand for it to increase. It is a machine for saddlers and harness makers, saving one-fith of the labor, and executing the work better than by hand. It channels, picks, buffs or splits trom half to two and a half inches, and cuts three sizes of ovats for filling traces or other double and stitched straps. The machine, which is three by eight inches, and the various tools connected with it, are of substantial workmanship.

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Ray's Patent Cushion Wheel.—This Improvement in the Wheel for Railroad vehicles is as simple as it is important. The rim is cast separate from the centre part through which the axle passes. These two parts, having a cushion or packing of leather between them, are firmly connected by bolts. When the rim is worn, it is taken off and a new one is easily and quickly secured to the hub part; thus much time and expense are saved. Formerly, when tke rim became worn, the whole wheel was laid aside, and much time and trouble were required to replace the new one.—Another advantage is that the shrinkage more generally secures perfect rotundity. Mr. Ray is at 33rd st. and 3rd Avenue.

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Stevens' Patent Post and Fence.—This will doubtless be deemed by farmers and others, a valuable invention. The posts are made of burnt clay, moulded and burnt in the some way as hard bricks. A post of 5 feet long, 4 inches square at the bottom, and 3 at at the top, can he afforded at the brick yards for 12 1-2 cents. With ordinary usage, they are nearly as durable as stone, and, in the long run, cheaper than wood. The posts are set in the ground diagonally or cornerwise. A tenon is made on the top of each post, on which is placed a coupling block to which the top rail is secured by pins or nails. The fence is thus secure and firm, not liable to rot. The inventor is Capt. Joseph Stevens of Northumberland, Saratoga county, N. Y. Specimens may be seen and rights purchased, at the Mechanics' and Farmers' Agency, 34 Ann st.

—

Washing Machines.—There are, at the Fair, several machines for washing clothes that far surpass our expectations. We have seen so many failures that we almost despaired of meeting with one truly labor-saving. That invented by E. Luckens is exceedingly simple, is on the pressure principle, and is worked by two handles or levers. A girl of 12 or 15 years of age can, with this machine, as a most healthful exercise, effect more work and with less labor, than the most able wash woman in the ordinary way. It is simple and not liable to get out of repair. It has been before the public about two years and is very strongly recommended. For sale by T. Gaskill & Co., No. 9 Pine street.

—

Avery's Electric Magnetic Bath.—The water is impregnated with electricity.—A portion or the whole of the body on being immersed in water, becomes electrified. Important cures of rheumatism, paralysis, dyspepsia and nervous affections have been made. Mr. Avery is distinguished for much science and practice. Corner Hudson and Canal st.

—

Avery's Ladder.—The side pieces are hollowed out. They are connected, near the top and bottom, by two iron slats having a joint in their centre. The other slats are cords. By the aid of the joints, the ladder instantly assumes the form of a pole, and can be conveyed in the hand or conveniently stowed away. It is strong, light and very portable.

—

Barnes' Patent Door Mats.—These are made of bristles, and for durability and effective cleansing of the feet are unsurpassed. They obtained the premium at the last Fair, and improved patterns have been got up to grace the present exhibition. Barnes & McKeachnie, 255 Pearl st., are manufacturers. Windle & Co., 56 Maiden Lane; Messrs. Millen, 447 Broadway, are the agents.

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Merriam's Olive Soap.—We have long entertained the impression that soap was susceptible of great improvement—more effectual in its cleansing properties. Mr. T. P. Merriam, of Providence, R I., appears to have made this improvement. Mr. M. exhibits some sheep skins with the wool rendered by this soap as white and as clean as new—fallen snow. It is recommended as washing easy in hard, soft and salt water. If it sustains its strong recommendations it is truly a labor-saving and important article We shall try it. Among the numerous and strongly recommended articles manufactured by Mr. Merriam, is a vegetable Cosmetic Oil Soap—very superior—as a cleanser, a curative of cutaneous diseases, and a dentrifice.

—

Metallic Life Boat.—Among the endless and interesting objects, is one of Francis' Patent Metallic Life Boats. It is 26 feet long, 5 feet wide and 2 feet deep. It is stamped from four sheets of copper by an hydraulic pressure of *two millions* of pounds. When full of water, it will sustain 10,000 lbs. It was made for Judge Butler, of New Orleans, by Stillman, Allen & Co. at the Novelty Works in this city.

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Filters.—Much attention has recently been gtven to filters capable of being conveniently attached to Croton Pipes. Mr. J. H. Jennison, of this city, has taken the lead in calling attention to this subject. His invention received a gold medal premium at the last Fair. It is strongly reccommended by many of our most distinguished citizens, and has been vended by him the past year. The article is simple and very efficient. It is surprising how much foreign matter may be obtained from water apparently clear and pure. Simply by reversing this little machine, all the impurities can be collected and exhibited in a glass vessel. On seeing the quantity of matter filtered from a few gallons of even our pure Croton, every one resolves to have a filterer. Mr. J. is at 66 Frankfort street.

—

Gaylord's Hay and Stalk Cutter.—As far as experience in the use and manufacture of straw-cutters qualifies us to judge, we pronounce this machine equal if not superior to any other at the Fair. It is very simple and strong. it operates by hand, foot or horse power. It has but one knife, which is of peculiar form, dividing the volume of straw and cutting at the same time with its concave and convex edges. The price we regard as low—$14. Orra Warner, Gaylord's Bridge, Connecticut, is the agent.

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Baths.—Among the shower baths, that of neighbor, J. Locke, 31 Ann street, compares well with its numerous competitors. Is is used for both a cold and vapor bath.

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Fire-Proof Iron Window Blinds.—Among the improvements exhibited at the Fair, few are of greater importance than that of the substitution of iron for wood in the material for window blinds. They are of cast iron, durable, not likely to get out of order, as cheap as wood, and a protection from fire. They are invented by E. P. Drake, Troy, N. Y. Specimens may be seen at the Mechanics and Merchants' Agency, 34 Ann street.

(*To be Continued.*)

You can't stop 'em.

The Buffalonian says he would as soon try to go to sea on a shingle, make a ladder of a bog, chase a streak of lightning through a crab apple orchard, swim the rapids of Niagara river, raise the dead, stop the tongue of a woman, or set Lake Erie on fire with Lucifer matches, as to stop two young 'uns from getting married when they take it into their heads to do so.

A boy belonging to the Albany Argus office, fell from the banister of the stairway, last week, and broke his arm. There are a few boys about our premises, who need breaking.

Information to persons having business to transact at the Patent Office.

Continued from No. 3.

RE-ISSUE TO CORRECT A DEFECTIVE DESCRIPTION.

Sec. 30. When an applicant wishes to cancel an old patent, and to correct a mistake or error, which has arise from inadvertence, he should state this fact in his application, and expressly *surrender* the old patent, which must be transmitted to the Patent Office before a new patent will be issued. And no improvement or alteration made subsequent to the filing of the application upon which the original patent was granted, can be introduced into a patent upon re-issue.—Section thirteen of the act of July, 1836, enacts, 'That whenever any patent, which has heretofore been granted, or which shall hereafter be granted, shall be inoperative or invalid, by reason of a defective or insufficient description or specification, or by reason of the patentee claiming in his specification, as his own invention, more than he had or shall have a right to claim as new, if the error has or shall have arisen by inadvertency, accident, or mistake, and without any fraudulent or deceptive intention, it shall be lawful for the Commissioner, upon the surrender to him of such patent, and the payment of the further duty of fifteen dollars, to cause a new patent to be issued to the said inventor for the same invention for the residue of the period then unexpired, for which the original was granted, in accordance with the patentee's corrected description and specification.

Sec. 31. When the original patent has been lost,—before a re-issue can be granted,—the original patent should first be restored (as explained in section twenty-eight,) and then surrendered.

Sec. 32. In the re-issue, the claim is subject to an examination as in the case of original patents; and if it shall appear that any part of the claim was not original at the time of granting the patent, the re-issue will not be granted, unless said part be omitted in the claim, or a disclaimer filed in the Patent Office. And if there is not any thing which can be claimed, the re-issue cannot be granted, and the surrendered patent cannot be returned.—Where the patent was granted before the 15th of December, 1836, a model and drawings of the invention as originally patented, verified by oath, must be deposited in the patent Office before a re-issue can be granted, unless dispensed with by the Commissioner.

Sec. 33. And in case of the death of an inventor, or of any assignment of the original patent, made by him, a similar right vests in his executors, or assignees: and the patent so re-issued, together with the corrected description and specification, have the same effect and operation in law, on the trial of all actions thereafter commenced for causes subsequently accruing, as though the same had been originally filed in such corrected form before the issuing out of the original patent.

Sec. 34. On the surrender of a patent, several patents may be issued for distinct and separate parts of the invention, upon the payment of thirty dollars for every additional patent issued.

DISCLAIMERS.

Sec. 35. The 7th section of the law of 3d of March, 1837, provides as follows: 'Section 7. And be it further enacted, That whenever any patentee shall have, through inadvertence, accident or mistake, made his specification of claim too broad, claiming more than that of which he was the original or first inventor, some material and substantial part of the thing patented being truly and justly his own, any such patentee, his administrators, executors and assigns, whether of the whole or of a sectional interest therein, may make disclaimer of such parts of the thing patented as the disclaimant shall not claim to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent; which disclaimer shall be in writing, attested by one or more witnesses, and recorded in the Patent Office, on payment by the person disclaiming, in a manner as other patent duties are required by law to be paid, of the sum of ten dollars. And such disclaimer shall thereafter be taken and considered as part of the original specification, to the extent of the interest which shall be possessed in the patent or right secured thereby, by the disclaimant, and by those claiming by or under him, subsequent to the record thereof. But no such disclaimer shall affect any action pending at the time of its being filed, except so far as it may relate to the question of unreasonable neglect or delay in filing the same.

Sec. 36. In cases of patents granted before the 15th of December, 1836, no disclaimer will be admitted for record until a model and drawings of the invention, as originally patented, verified by oath, shall have been deposited, unless dispensed with by the Commissioner.

(*To be continued.*)

The Christian.

Truly has the poet said, that the Christian is the highest style of man. The impenitent sinner is a slave to his appetites and passions, and to the devil; the Christian is a freeman in Christ, and an heir of God and a joint heir with Christ, even to all the glories and honors that Christ will ever have: the sinner is an heir of hell and death. A Christian is one who is like Christ. Christ was meek and lowly, so is the Christian. Christ was constantly doing good—so is the Christian. Christ constantly strove to save men from ruin—so does the Christian. Christ was emphatically a peace maker—so is the Christian. Christ was a non-resistant—so is the Christian. Christ was much engaged in secret prayer—so is the Christian. Christ prayed for his enemies—so does the Christian.

Reader, is this your character? If not, you have not his Holy Spirit, and are none of His. Says God's word, the path of the just is as the shining light that shineth more and more unto the perfect day.—Prov. iv. 18. That was Paul's course. Is it your course? Or, is your light becoming dim? If so, you are not in the path of the just, or like Christ.—[C. Morely.

Love, Joy, Peace.

How can he be miserable that hath Christ, and all his merits made sure to him? that hath his name written in heaven? yea, that is already in heaven? for where our desires are, there ourselves are. The heavenly-minded live not so much where they live as where they love; that is to say, in Christ. Surely, his soul must be brimful of brave thoughts that is able to refresh himself with this meditation; God is my Father; Christ, the Judge, my eldest brother; the Holy Ghost my Comforter; the angels mine attendants; all the creatures mine for use; the world mine inn; heaven my home; God is always with me, before me, within me, overseeing me; I talk with him in prayer; he is with me in his word; surely if these be our accustomed thoughts it cannot but make us happy.—[Bishop Hopkins.

The Glory of all Lands.

Rev. S. M. Pomeroy, of Bangor, Maine. writes from the other side of the Atlantic, in this strain: 'One result of my observations in various countries is, the deep, overwhelming conviction, that the United States of North America is, immeasurably, the most blessed land the sun shines upon, in all his circuit through the heavens. You never meet an American abroad who does not say the same. Sins we have, indeed, many, great and fearful. But our privileges, how immense! The thought which has spontaneously risen to my heart a thousand times, as I have looked upon the inhabitants of these ancient lands in their squalid poverty, is, "*God bless the United States!*"'

Give no Pain.

Breathe not a sentiment—say not a word—give not an impression of the countenance that will offend another, or send a thrill of pain through his bosom. We are surrounded by sensitive hearts, which a word, a look even, might fill to the brim with sorrow. If you are careless of the opinions and expressions of others, remember that they are differently constited from yourself, and never, by a word or sign cast a shadow on a happy heart, or throw aside the smiles of joy that love to linger on a pleasant countenance.

Only 4400 families in Boston keep servants, while 15,474 families do their own work, in independent style, without servants.

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NEW INVENTIONS.

IMPROVEMENT IN THE MACHINE FOR MOWING AND REAPING GRAIN, &c.: By ALEXANDER M. WILSON, 3rd Sept., 1846.—What he claims is making the heel of the cutters rounded when a number of cutters are combined together on a wheel to cut grass or grain by the rotation and forward movement of the machine. He claims jointing the horse wheel to the forward part of the main frame, but back of the shaft of the cutting wheel, so as to have the horses placed forward and to the side of the cutters in combination with a wheel of cutters for cutting grain or grass, so that the cutters may follow the undulations of the ground independent of and not effected by the up and down movement of the horse. He claims the employment of the guide wheels in combination with the cutting and gathering wheel connected with its shaft, by means of curved or dished arms. And he claims in combination with the curved cutters attached to and forming the cutting wheel, the rotating grinding wheel, for grinding the upper leveled face of the cutters. And finally, he claims in combination with this, the grinder for grinding the under surface of cutters.

IMPROVEMENT IN THE METHOD OF SEPARATING THE OLEIC FROM THE STEARIC ACID, WITH A VIEW TO OBTAIN STEARIC ACID FOR THE MANUFACTURE OF CANDLES: By JAMES S. GWYNNE, 3rd Sept. 1846.—What he claims is the application of heat through a liquid or æriform medium to the mass to be pressed, in such a manner that the said mass, before it is subjected to pressure, shall be heated gradually and uniformly throughout to such a degree that white Stearic Acid is at no time during the process melted, the Oleic Acid is rendered fluid enough to be afterwards expressed.

IMPROVEMENT IN THE MACHINERY FOR PREPARING THE BLANKS FOR FORMING SCREWS OF IRON, AND OTHER METAL, COMMONLY CALLED 'WOOD SCREWS:' By THOS. W. HARVEY, 3rd Sept., 1846.—What he claims is the manner of producing the alternating motions necessary to the double feeding, by combining the respective arms with the cams, and having grooves crossing said cams carrying swivelling cam pins, and operating the rock shafts, which shafts are connected with the respective operating parts of the machine, with the exception of the heading die. And this he claims whether said motions be effected by one or more cams. He also claims the arrangement and combination with the cams, and with the respective rock shafts, and single heading punch, of the double acting apparatus, consisting of the feeding wheels and segments, the cutters, the gripping tumblers, and the sliding die holder.

IMPROVEMENT IN THE SELF-SETTING TAIL BLOCK FOR SAW MILLS—By HORACE MERRELL, 3d SEPT., 1846.—What he claims is the application of the vibrating rack, together with the moveable cogs, and the moveable racks, connected to the mill floor or timbers, in combination with the lever, wheel, and the other appendages.

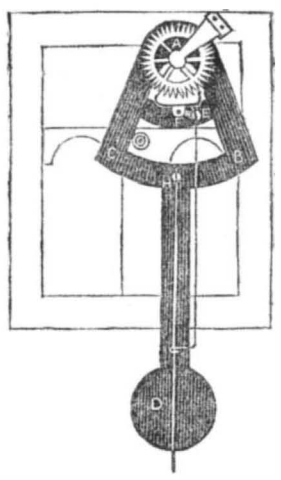
Luxton's Portable Swing.

Mr. S. H. Luxton, corner of Bethune and Washington streets, has constructed a swing for the exercise and recreation of invalids and children, and in which is combined more elegance with simplicity, than any plan we have seen for that purpose. It is furnished with cords, whereby the swingers can readily put themselves in motion; and being of suitable size and style for a parlor or nursery, we expect it will come into extensive use. Mr. Luxton has taken measures for securing a patent for the invention.

Otis's Patent Mortising Machine.

Among the great variety of excellent machines which attract the attention of the visitors of the Fair, there are few if any in which so much science, utility and good workmanship are combined, as in the mortising machine, invented by Mr. B. H. Otis of Syracuse. We shall procure an engraving of this machine, and give a full description in two or three weeks. The agent of the patent is Mr. John Green, 115 Water street.

Greig's Improvement in Clocks.



EXPLANATION.—This improvement consists of an appendage which constitutes a self-adjusting principle, and is calculated to remedy or avoid the difficulty experienced by many, in adjusting or keeping adjusted the common clock, so as to keep the beat thereof regular. The addition which constitutes the improvement consists of a pendulous plate and ball, A B C D which is suspended from a collar attached to the front plate of the clock at A. This collar, which constitutes the bearing of the self-adjusting pendulum, encircles the arbor of the pallet wheel, but without coming in contact therewith. The stand E which supports the verge F, as also the pin H from which the pendulum rod is suspended, are attached to the self-adjusting plate, which being kept in a vertical position by means of a ball D at the bottom, the verge is kept constantly adjusted to the teeth of the pallet wheel, whether the clock stands in a perfectly perpendicular position, or inclined several degrees to the right or left. So perfectly does this self-adjusting appendage perform its part, that a clock to which it is attached, may be removed from place to place, carried by hand or on board a vessel, without affecting the regularity of its movement during such transportation. This improvement was invented by Mr. John S. Greig, of Waldon, Orange County, who has taken measures for securing a patent therefor, and has a fair prospect of deriving a liberal remuneration for his invention.

Economy in Fuel.

We have recently examined, in an apparatus entitled 'Griffith & Co.'s Patent Heat Generator,' the introduction of a novel and scientific method of preventing the escape of heat from the furnace or fire-place, to the chimney. The invention is based on the theory that the portion of air the most heated, or containing the most heat, is invariably the lightest, and consequently, rises to the surface of the furnace, or fire chambers, while the portion least heated, or which has parted with its heat by coming in contact with a boiler or other substance of lower temperature, seeks the deepest sections or cavities. On this principle, the furnace of the 'generator' above mentioned, is so constructed that the air and smoke, after passing from the fire some distance, in contact with a horizontal cylindrical boiler is required to descend several feet, before passing off to the chimney. The consequence is that neither heat nor smoke are hardly perceptible in the air which passes into the chimney, even when a glowing fire is burning in the furnace.—There are various modes in which this principle may be applied with advantage, and which we shall notice with illustrations in a future number.

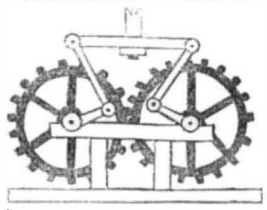
Wrought Iron Pipes.

We have recently had occasion to use several sections, joints, curves and elbows of iron pipes prepared and sold by Walworth & Nason, No. 14 Platt street, and are constrained to admit that the utility and convenience of this kind far exceeds even the favorable opinion which we had entertained of them. The variously formed sections, are readily adjusted to each other, and the forms are so various as to accommodate all the turns, crooks and branches that may be required for steam or water pipes. They are made of the best of iron, and are much cheaper as well as stronger than copper pipes, and we freely recommend them to all who have occasion for tubing for any purpose.

Another Brick Machine.

A Baltimore paper gives the following description of the operation of a new brick making machine, in operation in that city: 'The clay is emptied, in its natural state, from the tail of the cart into the machine, from which it emerges in a few seconds, in beautiful, glossy and perfectly formed bricks, which are immediately conveyed to the kiln. The first operation of the machine is to grind the clay, which is done by passing it through a system of iron rollers thickly studded with projecting teeth, which divide and commingle the dry clay, and deliver it into a hopper in the state of powder, from whence the moulds are filled, at regular intervals. Over the proper moulds, which are stationary, are others that are moveable. When the charge of clay is to be received, these upper moulds coincide with the lower ones, and the clay fills both. Immediately, the solid iron followers come down, exerting a pressure of near 200 tons upon each brick, and forcing all the clay into the lower moulds. As soon as the pressure is removed, the moveable moulds recede, and the bottoms of the solid moulds rise, bringing the perfectly formed brick upon a level with their upper edge, from where they are pushed out by the return of the moveable mould, when the same operation is repeated. The brick are then placed upon trucks and conveyed to the kiln. In this way, the machine worked by a steam engine of thirty horse power, makes about 30,000 brick in twelve hours; each revolution of the machine makes four distinct pressures upon as many pairs of moulds, producing eight brick. By this machine, twenty hands can make as many brick as one hundred could by hand moulding, and are enabled to work in almost any kind of weather.'

Mechanical Movement.



THE DOUBLE CRANK AND PISTON ROD.—In connecting a rectilinaer to a rotary motion, or vice versa, it is customary to use but one crank, and consequently there is considerable friction occasioned by applying the power from the crank to the piston or vibrating frame, or from the piston to the crank, on account of the oblique or indirect application. But by using two cranks connected by gear as represented in the cut, the application of the power in either direction, to or from the cranks, is balanced by equal obliquity of the connecting rods or shackle bars, which connect the cranks to the cross-head or vibrating frame, so that all the friction occasioned by the obliquity of a single crank is avoided. This is a much better mode of applying the motion of a crank to a vibrating saw, or that of a piston rod to the crank of a paddle wheel, than by the ordinary single crank.

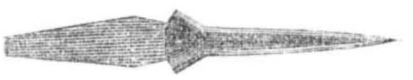
Machine for turning the heads of Wood Screws.

An invention under this title was entered at the Patent Office on the 18th of August, by T. W. Howey. It would be more difficult than expedient to describe in full this machine, but the inventor's claim is as follows: 'What I claim, is, the particularr manner in which I arrange, combine and operate the punch or driver, the tool holder and the rest, which are actuated by the double grooved cutter cam so as to co-operate in the turnings of the heads of the blanks, in virtue of the arrangement of moving parts herein fully set forth. I also claim the particular manner of constructing the adjustable turning head, the slide or seat piece, the tool holder sliding on the piece, between the cheek pieces with the respective adjustments thereof, combined, arranged, and operating, so as to effect the setting of the tool.'

Machine for Fencing and Ditching at one Operation.

Mr. Wm. C. Bussey has invented a machine in which two ditching machines are arranged in such a manner that the sods cut from two parallel ditches shall be elevated and placed with the grass side out, in a continuous ridge between said ditches, at one operation. Entered at the Patent office, Sept. 3rd,

The Countersink Bit.



This convenient little instrument which has been recently introduced, requires but little explanation. It consists of a hollow bit, formed to accommodate the shape of a common wood screw, and has at the head of the cutting part, a pair of opposite, oblique cutters, so formed as to cut a conical cavity at the surface to accommodate the head of the screw. To accommodate screws of various sizes, a set of bits of graduatad sizes are required. Every carpenter and carriage-maker will readily understand the utility of the invention.

Water Burning for Illumination.

A French chemist, Mons. Jacob, is said to have found a very simple process for decomposing water, and applying the gases thus produced, to the production of a very clear gas light. A small quantity of oil, however, is used in conjunction with the gases produced from water. The French Government has patronized the invention, and several manufactories in France are using these lights. We had not seen the notice of this invention until after our article, an the 'Philosophy of Water,' was in type; and we venture to predict that we shall show in a few days, a feasible plan for illumination by an electro-hydro Drummond light for common use, superior to Mons. Frenchman's invention.

White's Fountain Pen.

It has long been a desideratum with writers to find a pen that would for a length of time furnish a supply of ink without the embarrassing process of frequent recourse to the ink-stand. This object is now accomplished in a pen invented by Mr. G. White, No. 43 Ann st. The pen-holder to which this pen is attached, may be readily filled with ink, by simply turning the head thereof, and when thus charged, the ink will continue to flow to the nib as fast as required and no faster, until the quantity in the reservoir is exhausted. Mr. White intends procuring a patent for this invention, and we think it cannot fail of commanding an extensive sale.

Dr. Lewis's Improvements.

We have heretofere described with illustrations some ingenious and valuable inventions produced by this gentleman, but have seen nothing equal to the eight wheeled car, a working model of which is now being exhibited at the Fair. Itis an improvement on his former plan for securing safety; and the wheels of the improved car adhere so closely to the rails that they cannot be thrown off by sticks or stones being placed upon the track. We think the railroad companies should adopt this plan in preference to all others, for the security of their own property as well as the lives of their passengers.

Self-Manœuvering Cannon.

We find it stated in several exchange papers that a Mr. Dixon, of Lynn, Mass., has invented a cannon that will not only load and prime itself, but will charge upon the enemy, or, at least, run itself off to any required distance, discharge ten shots in succession, and then retreat to its first position to reload. It will, of course, be requisite, in case of actual service, to place the enemy in a position the most favorable to the destructive effects of the engine. This would be very easily effected, if the enemy is sufficiently polite and pliant.

A French Invention.

A French engineer has lately divined a method of expelling carbonic acid gas from pits, mines, reservoirs, &c., by discharging among the deleterious gas a volume of steam, whereby the gas is expelled, and in part absorbed, by the water brought into minute subdivision, while in part the steam is being condensed. We should think it much more rational to blow a powerful gust of fresh air into the mines, &c., occasionally, without the aid of chemical preparations.

Improved Hemp-breaking Machine.

This improvement, invented by T. L. Fortune, and entered Sept. 3rd, consists in having the swords of the break curved cornerly from end to end, and placing the centre swords higher than the outside ones.

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NEW YORK, OCTOBER 17, 1846.

Philosophy of Water.

It is a curious fact that notwithstanding the power of water to quench fire, and the general application thereof for that purpose, its component parts, when simply mixed together without chemical combination, constitute the most combustible and violently explosive compound that is generally known. It is composed of oxygen and hydrogen in the proportion of 35 to 15. It is readily decomposed by chemical process, and reduced to a highly elastic gaseous state. The most ready method of producing the hydrogen gas, is to put a quantity of zinc or iron filings into sulphuric acid diluted with twice its volume of water. The oxygen of the water rapidly combines with the metal, thus liberating the hydrogen which ascends in the form of gas, producing violent ebullition. By placing this compound in a glass bottle or flask, the gas may be collected either by attaching a collapsed bladder to the neck of the bottle, or by conducting the gas through a small pipe to the interior of another bottle, filled with water and placed in an inverted position, with the mouth immersed in a basin of water to prevent the escape of the water from the bottle, only as it is displaced by the ascending gas. Oxygen gas may beready produced by mixing together a small quantity of sulphuric acid and common lead, and applying the heat of a lamp. This may be collected in the same manner as that described for hydrogen. These gases being mixed in the proportion above described, will explode with a loud report, on the application of the least flame, or by the electric spark. This explosion has the effect to unite chemically the two ingredients, in the form of water, while the caloric, which was held latent in the gases, is separated and appears in a sudden flash of flame. Water is also readily decomposed and reduced to the gaseous state, producing both kinds of gas at the same time, by means of a current of galvanic, magnetic, or thermo electricity. An excellent improved machine for this purpose has been recently invented, and will soon be introduced in our columns, with a beautiful illustrative engraving, in connection with illustrations of the Drummond light. Water contains 140 degrees of latent heat, even at the freezing point, and requires 1000 degrees to convert it to steam, when at the boiling point. It is a good conductor of sound, and a medium conductor of electricity: is so free from any frictional property, that by the pouring of a single pailful of the liquid into the ocean, all the water therein contained, is thereby affected and put in motion.

Relative Expense of Steam at different Temperatures.

The plan is frequently suggested, of producing powerful effects by means of vacuum produced by steam, which being suddenly condensed, the atmospheric pressure is employed for the power required. We now propose to examine this subject, and briefly show what amount of advantage may be gained by this application, compared with that of steam pressure. Supposing the temperature of water to be at 212 degrees, 1000 degrees of heat are required to convert the same to steam, under the ordinary atmospheric pressure. Suppose the quantity of water to be one cubic foot, 1000 degrees of heat will produce 1700 cubic feet of steam, and the atmospheric power produced by the condensation thereof is equal to raising 35,972,200 lbs. one foot high. The addition of 100 degrees of heat, will produce 379 cubic feet of steam under a pressure of 76 lbs. per. square inch, which is equal to raising 4,147,776 lbs. one foot high. Thus it will be seen that there is more power obtained in proportion to the quantity of heat expended, by raising the temperature of steam to 312 degrees, than by that of 212, or barely sufficient to resist the atmospheric pressure, to say nothing of the additional power to be derived from the condensation of the 379 feet of steam, or that which which may be produced by the expansion of the high pressure steam.

Motion of Cutting Tools.

It is commonly remarked among mechanics that a cutting-tool, being put in motion and applied to another object, has a greater effect, in proportion to the power applied, than if the object to be operated on be put in motion and forced against the tool, while the latter is firmly fixed stationary; and, as an instance of this, it is averred that if an axe be placed on the ground, with the edge upward, and be struck while in that position by the edge of another equal axe, the edge of the first will be indented by the concussion much deeper than that of the descending axle. If this be a fact, we know of no rational theory in support of it, although not fully prepared to deny it; being aware that various kinds of cutting tools have a very different effect under different degrees of velocity. It is well known that in cutting, hewing, planing or splitting timber in general, the more rapidly the tool is made to move, the more effectually and smoothly the work is accomplished, especially where the direction of the grain of the wood is unfavorable; while, on the other hand, the fact is established by modern practice, that in planing or cutting cold iron,—either cast or maleable,—a tool moving with a slow, but strong, steady and permanent motion, will cut more smoothly, and be more effective in its operation, than when driven by the concussion of a hammer; the cutting tool in this case, moreover, retains its edge much better with a slow motion. The limits of the effect of a cutting tool moved in this manner, are not yet known; but it is known that a chip a quarter of an inch thick, may be taken from an extensive surface of an iron casting, at one operation. It has been suggested, and we think with apparent propriety, that free-stone, or even marble and granite, might, by means of a permanently constructed apparatus to operate on this principle, be wrought into the required shape more advantageously than by the ordinary method. On this subject we have made some experiments on a small scale, which have increased our confidence in its practicability.—We think this subject worthy of the attention of stone cutters and marble workers, and, if required, will cheerfully furnish some plans of machinery suitable for the experiment.

A Terrific Descent.

It is not a little extraordinary how many of our most important discoveries owe their existence to chance. Every body knows the anecdote about Isaac Newton and the apple. But every body does not know the anecdote of Sir Peter Pontoe who found the bottom of a coal mine by chance. I proceed therefore to relate it. Sir Peter had been quarrelling with one of his workmen the day previous to the catastrophe I am now narrating relating to wages. There are two ways of descending into coal pits. The usual way is to be wound down a machine, but they to whom the exit and entrance are matters of custom, content themselves in descending by grasping a rope, which communicates to a counteracting pulley. The weight of the individual thus carries him downwards without dislocation. Sir Peter on the day in question, adopted the latter expedient, as usual, in utter darkness. Judge of his horror, when on reaching the extremity of his journey, be found that his feet failed to touch the ground. He instantly thought that the workmen with whom he had quarrelled, had in revenge cut short the rope. He screamed and bawled till he was hoarse, but all the operatives had sojourned to their dinner. At length his strength failed him, he let go his hold, expecting to be dashed to atoms in the unfathomable abyss, and found that he had been for a full half hour screaming about three inches from the ground. Here was a chance discovery which nettled Sir Peter sorely; inasmuch that he felt half angry with himself for not having been precipitated some hundred feet, according to his reasonable expectations.

The Albany Knickerbocker thinks it will require four or five wires to accommodate all the telegraph business between Albany and New York.

Railroads.

The various railroad enterprizes of the country are in progress without any cessation of public interest in them, which is clearly on the increase in every part of the country.—There is now in operation in the United States over eleven thousand miles of railroad. The route from Portland to Montreal is urged on with great vigor by its friends, and operations have been commenced at both extremities of the line. It will most probably be carried on to completion in spite of its great cost, and the lack of capital which it would command were it a Boston or New York enterprize. If the various railroad routes are executed, which are now proposed, and most of them will be, the seaboard of New-England will have a much more direct available connection with the interior than has hitherto been the case. Salem, (Mass.,) is soon to be connected with the new city of Andover by a railroad, and thence to Manchester, in this State, a road will be built in the course of a few years. Portsmouth, also, cannot fail at no very distant time to have a direct road to this place. This will enlarge the market for domestic produce to the great advantage of farmers. In other parts of the country great progress is now making in furnishing the inhabitants with railroad facilities. The great New York and Erie railroad, from New York city to Lake Erie, is again put in course of construction, being now in operation over 60 miles. It is also contemplated to build a railroad from New York city to Albany, a distance of 150 miles, which it is intended to run over in five hours—the fastest steamboat not being able to go in less than eight. In winter, of course, it will command the whole traffic. The only railroad communication in winter now is by means of the Housatonic railroad—a very roundabout and inconvenient route. It is stated that the Western railroad is likely to be benefitted by the new free trade system of the English, as much of the produce which was formerly shipped by way of Montreal, will now come over the Western road to Boston. This stock is now nearly up to par, and the prospect is that in a short time it will pay a dividend of more than six per cent. A railroad is now constructed some distance above Springfield, Mass., on the Connecticut, and is said to do an immense business. This road will no doubt be extended up the valley of the Connecticut as far as Wells river—at which point the proposed Passumpsic road will touch the river.

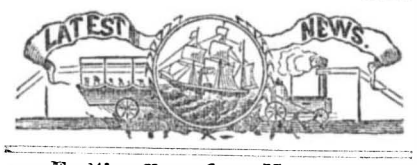
Of the southern States, Georgia seems to have taken the lead in railroad matters, there being in that State over 500 miles of railroad in successful operation. In Ohio considerable has been done within the last year, but the western states in general are doing but little, having so injured their credit by their repudiating proceedings that they can do nothing for them as State enterprizes, and individual capital is too scanty to make any great advance.—Several of the southern and western roads have been so unprofitable and have been so badly managed that they are entirely abandoned.

As we have before remarked, the interest in railroads in this country has by no means reached its maximum: it has arrived to nothing like the pitch it has reached in England. To that point, or somewhere near it, it certainly will arrive, when not only all, or nearly all, the railroad enterprizes now projected will be built, but many others, some of them sufficiently absurd, not now dreamed of, will be projected. The railroad interest in England still continues as intense as ever, and occasions great alarm to the financiers of that country, by the vast absorption of the active capital of the country into railroad enterprizes which are now going on. [N. H. Gazette.

Allen on the Bee.

We have received a neat pamphlet of 58 pages, comprising a treatise on the natural history, physiology, and management of the Honey Bee, and illustrated with several engravings. The work must be valuable to those who have the management of Bees. Published by Thomas R. Allen, of Syracuse, N. Y.

'Received by Lightning—Printed by Steam,'—is the stereotyped head of the telegraphic news in the Buffalo Courier.



Exciting News from Monterey.

The city of Monterey, with all its strong, and well applied fortifications, have been captured by Gen. Taylor and his brave and resolute companions. The place was fortified in all its suburbs far beyond the anticipations of Gen. Taylor; and the Mexicans, conscious of their advantages, and encouraged by General Ampudia, fought with great skill and determination; but it could not avail. While battery after battery on the surrounding heights, were stormed and taken by the gallant Col. Worth, and the main body of the army under Gen. Taylor were attacking the citadel and several batteries, defended by the most efficient of the Mexican forces, a battalion was engaged in bombarding the city, and two regiments advanced through the heavy cross-fire from the batteries, and attacked the Mexican reserve in the heart of the city, though not without severe loss, from a raking battery in front, and the musketry from the windows and tops of the houses on both sides of the street. The battle commenced on the 20th of September, and continued with great vigor for three days, till all the batteries being carried and the city so hardly beset, Gen. Ampudia, on the 24th, requested an interview, and after some hours of negotiation, capitulated, but was permitted to march out with his army, in consideration of the gallant defence of the city and fortress. The loss on our part is severe, probably 500 or 600. The Mexicans must be conscious, by this time, of their inability to oppose the American arms, and it is to be hoped that there will be no further occasion for hard fighting during the war.

Speculation.

Large speculations are said to have been made in flour, by means of the magnetic telegraph, in addition to certain private signals made from the Great Western prior to her arrival in port. One man in Albany is reported to have cleared $20,000.

Jumping Off.

A special train of cars attempted last week to run over the Neponset Bridge (on the Old Colony Railroad) while the draw was up. The engine did not succeed in jumping over, however, but tumbled into the river.

A private in the army, writing to a friend from Seralvo, near Monterey, says that he has drunk real China tea, grown on that soil, nearly equal to any imported from the Celestial Empire.

Mr. Alger, of Bridgewater, gathered from two acres of meadow, 296 bushels of cranberries, which, at $2 per bushel, would amount to the handsome sum of $592.

The convicts of the Massachusetts State Prison, have contributed a donation of 450 volumes of books, to the convicts of the State Prison of Illinois.

A paper has been started in Worcester, Mass., called the 'Liberty of the Press.' An exchange paper thinks the *cider-press* is referred to, as the paper advocates drinking.

In Austin, Texas, corn is selling at fifty cents, beef two to three cents, and vegetables in abundance.

The Milwaukie Gazette says that 300 to 600 passengers, mostly emigrants, are landed daily at that place.

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Observations on the more recent Researches concerning the operations of the Blast Furnace in the Manufacture of Iron.

BY DR. J. L. SMITH.

(*Continued from No. 3.*)

2. *Changes that take place in the ascending mass, which is composed of air and hygrometric moisture.*—The weight of the air thrown in at the tuyer in twenty-four hours is twice that of the ore, coal and flux, thrown in at the mouth during the same time.

The air, as soon as it enters the tuyer and reaches the first portion of coal, undergoes a change—its oxygen is converted into carbonic acid, and its moisture decomposed, furnishing drydrogen and carbonic oxide—after ascending a short distance, (12 or 18 inches) the carbonic acid is converted into carbonic oxide—between this point and the upper part of the boshes it undergoes but very little change, having added to it a further small amount of carbonic oxide. So the ascending column at the top of the boshes is composed of nitrogen, carbonic oxide and hydrogen—from this point it begins to undergo a change; the carbonic oxide diminishes, carbonic acid appears, and goes on increasing for about half the way up the fire-room; after which the carbonic acid, carbonic oxide, and nitrogen, remain the same, when the hydrogen increases, and moisture begins to appear and augment up to the mouth. The ascending mass, as it passes out of the mouth, contains the vapor of water, carbonic acid, carbonic oxide, hydrogen and nitrogen. The nitrgoen undergoes no alteration in its passage through the furnace, and the same is trueof the hydrogen formed at the tuyer.

If wood be used, the gases passing out of the mouth are the same as those just mentioned, with an increased quantity of moisture, and the addition of those pyroligenous products arising from the dry distillation of wood.

In case of the use of bituminous coal, the gases, first alluded to, have added to them ammonia, light carburetted hydrogen, elefiant gas, carburetted hydrogen of unknown composition, and sulphuretted hydrogen.

3. *The chemical reaction occurring between the ascending and descending masses.*.—From the foregoing statements we can, at a glance, see what are the materials to be met with in the different parts of the furnace, and can therefore readily study their reactions upon each other.

In the upper half of the fire-room, little or no chemical action is taking place, the ore, flux and coal, as already stated, simply losing their volatile parts. In the bottom of the upper half, and the entire lower half of the fire-room, a reaction is taking place between the ore and the carbonic oxide of the ascending column; iron or magnetic oxide of iron and carbonic acid being the result. It must be borne in mind that the coal has played no part in this reduction down to the commencement of the boshes. Between the boshes, and in the hearth, no reaction appears to take place between the ascending and descending masses, but the reduction of the ore is completed by the direct action of the coal upon the remaining portion of the undecomposed ore; carbonic oxide being formed;—and here is the first consumption of the coal in its passage downwards.

According to M. Ebelman, the ore loses in the fire-room 28-33 of its oxygen by the reaction of the oxide of carbon, and the remaining 5-33 disappears in the boshes and hearth, in the manner already stated, at the expense of from 6-100 to 12-100 of the entire amount of charcoal used.

The ore being now completely reduced, unites with a portion of carbon in the hearth, melts at about 13 inches from the tuyer, and descends into the crucible; and here also the flux, combining with the impurities of the ore, forms the slag, which melts.

The coal and the air react upon each other most powerfully, just in the neighborhood of the tuyer, where the most intense heat is produced; the oxygen becomes converted into carbonic acid, which, acting upon a portion of the ignited coal, is almost at the same moment reduced to carbonic oxide; the moisture of air acting on the ignited charcoal.undergoes the decomposition already mentioned, hydrogen and carbonic oxide resulting therefrom.

HAMMOND'S IMPROVED PADDLE WHEEL.

FIGURE 1.

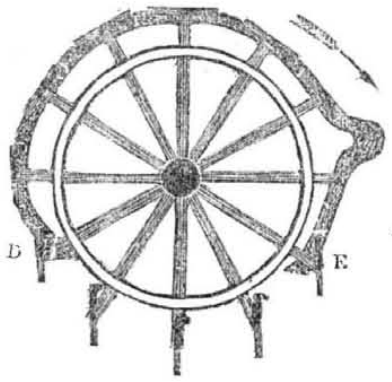
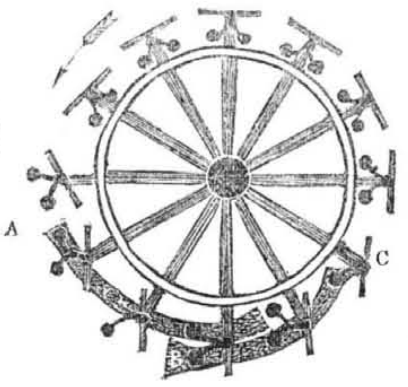


FIGURE 2.



EXPLANATION.—Fig. 1, in the engraving, represents the outside of the wheel, and fig. 2, the side nearest the side of the vessel to which the wheel is attached. The wheel contains two sets of arms, and the paddles are mounted on pivots projecting from each end thereof, and having their bearings in the end of each pair of arms; the end of the paddles only being shown in the cut. To each of the inside pivots, is attached two branches or arms, at right angles with the pivots, and on the end of each branch is a small pulley or friction wheel, which passing through two curved grooves A, B, C, fig. 2,—which grooves are attached to the side of the vessel—have the effect to govern the position of the floats during a part of the revolution; and on the outward pivots are a set of single arms with pulleys attached, which pass into the groove D E, fig. 1—which groove is attached to the side of the wheel box—whereby the positions of the floats are governed as represented in the engraving, through the remainder of the revolution. The object of the improvement is to prevent at the same time, the loss of power by the resistance of the water to the paddles in entering and leaving it, and also the atmospheric resistance against the paddles while passing over the wheel. This plan has not yet been proved, but he inventor, Mr. C. B. Hammond of Brooklyn, N. Y., intends putting it in experimental operation, soon as convenient.

When the ore is easy of reduction, the gas at the boshes is represented by 100 nitrogen and 525 carbonic oxide, *plus* the quantity of carbonic oxide and hydrogen afforded by the moisture.

It must be clearly understood, that these rules do not apply to every variety of ore.—They are especially applicable to the hemetites and such ores as are either naturally porous, or become so in their passage through the fire-room of the furnace, thus increasing the surface of contact exposed to the action of the reducing agent, (carbonic oxide) so that when it has reached the boshes the reduction is nearly complete.

The specular, magnetic, and siliceous ores, are reduced with much more difficulty; most of the ore, in these cases, reaching the boshes but slightly altered, they being principally dependant upon the direct action of coal for their reduction. This circumstance largely increases the consumption of coal when any of these ores are employed; and the amount of caloric made latent, in consequence of the reduction requiring the direct action of the coal, is very great; whereas, in the reduction of the ore by carbonic oxide, no heat becomes latent, for the heat rendered latent by the oxygen of the ore becoming gaseous, is compensated by the sensible heat produced by the combination of the carbonic oxide with the oxygen. Where the reduction is produced by the carbon, with the formation of carbonic oxide, 1598 unities of heat are made sensible, while 6216 are rendered latent, giving a difference of absolute loss of 4618.

It should be the object of the metallurgist to reduce as much of the iron as possible by the oxide of carbon. Magnetic, siliceous, and other hard ores, should be reduced to smaller fragments than those softer and more easily managed. Were it possible to reduce them to powder, without the danger of choking the furnace, it would be all the better, as the great object is to have a large extent of surface exposed to the carbonic oxide. The different capacity of different ores for reduction, shows the necessity of having furnaces of different dimensions for them respectively.

The matter which covers the melted metal in the crucible, and that which adheres to the interior of the hearth, contains silicate of iron and charcoal in a pasty state, and there is, consequently, a constant reduction of the oxide of iron, which gives rise to carbonic oxide; this gas bubbles through the slag, which, if drawn off at this time, will, when cold, present a porous structure,—a sure indication that the furnace is not working well, and that the slag itself contains much of the ore in the form of a silicate.

(*To be continued.*)

Counterfeit half dollars, made of German silver, are said to be in extensive circulation.

A Young Silk Factory.

Whoever goes to the village of Turner, in the county of Oxford, if he have any curiosity about him, or takes any pleasure in examining new inventions, cannot spend a half hour more agreeably than by examining a small factory designed for the manufacture of silk from the cocoon, into thread and twist, belonging to Capt. John Dillingham. Capt. D. not only made the machinery with his own hands, but invented a good part of it. It is placed on a small rivulet about a half or three quarters of a mile from the village, and consists of a small but neat, low building, about 15 feet square, crowded full of machinery for the silk business, and also for some other purposes. One new improvement which interested us much, is a machine made by a son of the Captain, for braiding cord or bite, and which works with precision and with good effect. Another is a machine for swedging out little cylinders of pine for matches; and another for winding thread and twine into any shaped balls you wish.

In regard to the silk business, Capt. D. finds that his location is not exactly right for his trees, they being often injured by late Spring frosts, which hurt, and sometimes kill the buds and tender leaves. Some of the people in the same town—a Mr. Carey for instance—being located differently, do not suffer in this way, and therefore meet with better success in the way of trees. We could wish that the ingeunity of Capt. D. could meet with suitable encouragement and reward. It is by such efforts that our country has been enabled to come up in strength and wealth to the standard, even beyond some of the nations of Europe, and to cope with the whole world in manufactures. The individuals who have led to this have not always been rewarded according to their merits, but the public have derived innumerable benefits from them, either directly or indirectly, and they are entitled to the respect and gratitude of their fellow citizens.—[Maine Farmer.

An Example of Penitence.

The 'Norway Advertiser' is a very pretty paper, and the editor seems to be a very good hearted fellow, notwithstanding he gives us a thrust for being an 'old bachelor.'—[Manchester Messenger.

Poor soul! we repented of our unkindness long ago. We sincerely pity your misfortune; and to make amends for the injury done to your feelings, we will say a word in your favor to all the schoolmarms in down east.—[Norway Advertiser.

Cutting and Curling.

On a barber's sign, in Worcester, is represented a hare *cutting* off at full speed, while an anaconda is *curling* to spring upon him.

Artesian Wells in London.

During the late session of Parliament, the bishop of London, while advocating the necessity for the building of new churches in the metropolis, stated that its population increased at the rate of 30,000 annually; an increase that requires a proportionate multiplication of all that contributes to the comforts and conveniences of life. Greater quantities of food and clothing will be wanted every year; more houses, involving the extension of streets and thoroughfares; and, above all, a greater supply of water; to quench the thirst of the additional number of throats, as well as to lay an ever widening surface of dust. It is to be hoped that the new scheme for the erection and working of public fountains will be continued and extended, until London may be as usefully embellished with *jets d'eau* as continental cities, of which they are generally considered the chief ornament. The initiative, as is pretty well known, has been taken by the formation of two fountains, with large basins, in Trafalgar Square; the water for which, instead of being supplied from any of the enormous companies, was obtained by boring, or the formation of Artesian wells.

In June last, Mr. Faraday delivered a lecture at the Royal Institution on the subject of these wells, in which he explained and illustrated practical details of the boring, and showed that the London public must look to the accumulations of water underlying the London clay, for their chief supply of the pure element, for drinking and other domestic uses. In inquiring into the geological relations of the waters lying deeply below the surface, he described the soil upon which London is situated, as particularly favorable to the realization of this means of raising water. It is composed, in going from above downwards, of a layer of gravel of moderate thickness; then an enormous bed of plastic clay, known, in geology, under the name of London clay; beneath which lie calcareous marls, gravel, sand and freestone, succeeded by massive strata of chalk; the whole thickness, from the surface to the chalk varying from 200 to 300 feet. It was further explained that, wherever the sand and chalk crop out, or rise to the surface, they must absorb the water which falls in those parts.—This water percolates downwards underneath the clay, and, finding no mode of escape, accumulates in the fissures of the chalk, ready to rush upwards through any opening which may present itself.

The property of water to seek a level when it has descended between strata concave upwards, or between inclined beds of stratified rock, naturally accounts for the success of the Artesian operation. If two basins be supposed of different strata, placed one within another, a little distance apart, and water be poured between, and a small hole be made in the bottom of the inner basin, the water will rise in a jet a very considerable height, and exemplify the nature of these springs: and multiplying the basins would afford an idea of those different springs found at varying depths, and of equally varying qualities. If, instead of the concave form, the plane of the strata be supposed to dip, the water, seeking the lowest point, and pressed by that which is near the surface, would equally rise, and form the Artesian well or spring, if the strata were perforated at their lowest level.

The general mode of constructing an Artesian well is by first digging and bricking round to a certain depth, dependent on the nature of the soil, as in an ordinary well; from the bottom of this, the boring into the lower strata of sand and chalk is commenced. In order to prevent the flow of any water into the opening, except that from these particular strata, the bore is lined with iron tubes, which completely shut out all percolations except that from the main source. Two borings were sunk for the works in Trafalgar Square—one of which is in front of the National Gallery, the other in Orange street, immediately in the rear, both being connected by a tunnel formed of brick laid in cement, 6 feet in diameter, and 380 feet in length. The borings for the deepest well penetrated to a depth of 395 feet, the lower portion of which, passing into the chalk 135 feet, is not lined with tubes.*

*A well sunk three years since at Grenelle, near Paris 1800 feet in depth, throws up 150,000 gallons of water every twenty-four hours.

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A contract was next made with Messrs. Easton & Amos, who furnished the plans and constructed the works — engine house, tanks and cisterns in Orange street—by which they agreed to work the engines for ten hours every day, supplying 100 gallons of water per minute to the barracks, National Gallery, Office of Woods and Forests, Admiralty, Horse Guards, Treasury, Scotland Yard offices, Whitehall Yard offices, India board, Downing street, and Houses of Parliament, in addition to 500 gallons per minute to the fountains in the Square, for the sum of £500 per annum: being just half the sum previously paid to the water companies who supplied those departments. The whole expense for sinking the wells, erecting the engine house, laying down the mains and the pipes to the fountains, was not quite £9000. The water of the fountains is constantly running the same round of duty, being pumped out as fast as it returns from the basins: the supply of 100 gallons per minute is obtained from the deepest well, which, at the end of the ten hours, is not lowered more than five feet under the rest level. With a little more power in the machinery, the contractors are satisfied that the supply might be increased to five times the present quantity.

Not only has an important economical advantage been gained, but the quality of the water is far superior to that supplied for the consumption of the inhabitants generally.—The presence of an alkali is shown, by its turning red cabbage water blue; a re-action due to the carbonate of soda, of which it contains a notable quantity, from 15 to 24 per ct. of the total proportion of saline matter held in suspension. Mr Faraday found 44.5 grains of solid matter, among which was a small portion of lime, on evaporating a gallon of the water. The excess of soda renders it extremely soft, and particularly useful for domestic purposes. It is at the same time, very agreeable to the taste. This success, and the certitude which the known natural constitution of the soil affords for procuring the same quantity of water, and in as great abundance as may be desired, in all quarters of the capital, has given rise to the idea of carrying out the practice either by new independent companies, or by concurrence with those already existing, wherever a sufficient number of consumers may be found willing to contribute to the expense

Professor Faraday stated that the water rent of 2000 houses would suffice for the practical carrying out of the plan, inclusive of the ornamental addition, already alluded to, of a pubic fountain. In Berkeley Square a well has been sunk, from which water is lifted up by a hand pump, for the use of the inhabitants of that fashionable locality; but it was shown that an outlay of £3500 in the necessary machinery, &c., would have produced a supply of water for £350 annually, which now costs £700, without a fountain, that might have been embraced in the other scheme.

Considering the rapid spread of London, and the eagerness with which new business enterprises are seized upon, it is not improbable that Artesian wells may become common, and thus give to the metropolis what its inhabitants so much require—pure water. The idea is not altogether new, for it appears that 'an endeavor was made in 1834–'5 to form a "Metrepolis Pure Soft Spring Water Company,' to supply the existing companies with their requisite quantities by Artesian wells of great magnitude; which failed rather through defects in the provisional committee, than through any demonstrated impracticability in their views, which had been entertained ten years previously, and formed the subject of an unsuccessful company in 1825.' A remarkable objection has been made to these undertakings, which can only be explained by the prevailing ignorance of the principles of their action. It was said that they would soon drain the wells sunk to the London clay, which can only give back the water gained from the surface; while the Artesian wells derive their supplies from the chalk, where there is not the slightest communication with the clay.—Such was the prejudice in this partic ular that a formal complaint was instituted against the new well of Trafalgar Square, while in course of boring, as having drained the neighboring wells, even before it had yielded a single drop of water.

After his able exposition, Mr. Faraday exhibited a simple apparatus, designed to demonstrate a new property of the fluid vein. It is well known that water, in escaping from an orifice of any form, does not long retain that form, but varies with more or less of irregularity; this is called the *contraction* of the *vein*. It occurred to the inventor of the apparatus that this contraction would be accompanied by a diminution of volume, which would consequently determine, in a close vessel, a diminution of pressure sufficient to cause a smaller column of water to rise from below, under the ordinary pressure of the atmosphere. To effect this, water is made to descend in a tube opening into a glazed box, in communication, by means of another tube, with a reservoir below. As soon as the valve which prevents the descent of the water is opened, the stream rushes into the box, contracts, produces a certain vacuum, when it is immediately seen that the water from below, which was colored to render the experiment more striking, ascends, and mingling with the descending column, flows out with it through the escape tube. The lecturer stated, in conclusion, that from the result of his experiments, it was probable that the principle might, in certain cases, be economically applied to practical purposes.

HUMOROUS.

Gen. Hamilton and the Juggler.

The following anecdote, told of the celebrated Alexander Hamilton, is quite amusing.—While on a journey to Albany, he chanced once to put up for the night at a tavern in one of the small villages on the Hudson river, where a mountebank had advertised a display of his ingenuity at slight of hand, &c., on that evening. Induced by motives of curiosity, and a desire to while away the tedious hours of a winter's evening, the General took a front seat in the apartment allotted for the performance. His keen, piercing eye did not escape the observation of the juggler, who, stepping up to him and handing him a silver dollar, politely requested him to hold it until he should call for it, adding that it might escape his fingers without his knowledge.

The General, thinking some harmless trick was intended, and being desirous of humoring the joke, readily accepted the dollar, and clenching it fast in his hand, waited in momentary expectation of some attempt being made to extricate it from his grasp without his privity. The juggler, when he attempted a new trick, would first cast an inquiring glance at the General, as much as to say, 'look out for the dollar,' when the former would immediately open his hand to convince himself that he was yet in possession of it. After the performance was over, the mountebank requested the dollar of Gen. H., who, on returning it, observed that he could discover no trick in it. '*I* do, though,' replied the mountebank. 'You had not been present three minutes, when I perceived that if I did not do something to divert your attention, you would detect me in every trick I attempted; I therefore gave you the dollar to hold, and managed to have it absorb so much of your attention, that I got through the performance much better than I expected when you first fixed your eyes upon me.' Gen. H., it is said, was highly amused at this chief d'œuvre of the juggler, and pronounced it the best trick performed that evening.

Unexpected Fun.

The New-York Mirror tells the following: Fun is never so good as when it comes unsought. Happening in at a coarse looking shop, where all looked and smelt of business, we saw a startling picture of two donkeys, with the following quotation from Shakspeare:

'When shall we three meet again?'

This is one of the best practical jokes at which the subject could not fail to laugh, as well as the bystanders.

A Montreal Justice of the Peace lately committed a Vermont lawyer to prison for contempt of court, in calling said Justice 'Old High Cockalorum.'

Coolness under Fire.

The Duke of Wellington was remarkable for the coolness with which he gave his directions. Even in the heat of an engagement he has been known to give vent to a humorous observation, especially when it seemed to raise the spirits of his men. Thus, when the British were storming Badajoz, his grace rode up whilst the balls were firing around, and observing an artillery man particularly active, inquired the man's name. He was answered, '*Taylor*.' 'A very good name too,' remarked Wellington, 'cheer up my men, our *Taylor* will soon make a *pair of breeches*—in the walls.' At this rally the men forgot the danger of their situation, a burst of laughter broke from them, and the next charge carried the fortress.

Jaw Crackers.

The report of a surveying commissioner in Maine, sometime since, mentioned the following names of places in that State: Soboomock, Passamegamic, Depskanegan, Parkwalamas, Abawljacamegas, Nawsawwaduhunkeramuxas, Amagemaramus, Rapagenas, and Chesuncook.

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates:

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AMERICAN AND FOREIGN PATENT AGENCY,

No. 23 Chambers street, New York.

JOSEPH H. BAILEY, Engineer and Agent for procuring Patents, will prepare all the necessary Specifications, Drawings, &c. for applicants for Patents, in the United States or Europe. Having the experience of a number of years in the business, and being connected with a gentleman of high character and ability in England, he has facilities for enabling inventors to obtain their Patents at home or abroad, with the least expense and trouble.

The subscriber, being practically acquainted with all the various kinds of Drawing used, is able to represent Machinery, Inventions, or Designs of any kind, either by Authographic Drawing, or in Isometrical, Parallel, or True Perspective, at any angle best calculated to show the construction of the Machinery or Design patented.

To those desiring Drawings or Specifications, Mr. B. has the pleasure of referring to Gen. Wm. Gibbs McNiel, Civil Engineer, Prof. Renwick, Columbia College, Prof. Morse, Jno. Lee.

Residence, No. 10 Carroll Place; office, No. Chambers street. oct19 tf

BLACK LEAD POTS!—The subscriber offers for sale, in lots to suit purchasers, a superior article of BLACK LEAD POTS, that can be used without annealing. The price is low, and founders are requested to make a trial. SAMUEL C. HILLS,
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GENERAL PATENT AGENCY.—The subscriber has established an agency at his warehouse, 12 Platt street, New York, for the protection and general advancement of the rights and interests of Inventors and Patentees.

The objects of this agency are more particulary to aid and assist Inventor and Patentees in effecting sales of their inventions and of goods and wares made therewith—and also for the sale and transfer of Patent Rights.

Arrangements have been made with a lawyer familiar with the Patent Laws, who will attend to the legal branch of the business upon reasonable terms. Satisfactory references will be given. Applications may be made to the undersigned personally, or by letter, post paid. SAMUEL C. HILLS,
45-22 tf* General Patent Agent.

STATE OF NEW YORK.

Secretary's Office, Albany, July 24, 1846.

TO the Sheriff of the City and County of New York: Sir—Notice is hereby given, that at the next General Election, to be held on the Tuesday succeeding the first Monday of November next, the following officers are to be elected, to wit:—A Governor and Lieutenant Governor of this State. 2 Canal Commissioners, to supply the place of Jonas Earll, junior, and Stephen Clark, whose terms of service will expire on the last day of December next. A Senatsr for the First Senatorial District, to supply the vacancy which will accrue by the expiration of the term of service of John A. Lott on the last day of December next. A Representative in the 30th Congress of the United States for the Third Congressional District, consisting of the 1st, 2d, 3d, 4th and 5th Wards of the City of New York. Also a Representative in the said Congress for the Fourth Congressional District, consisting of the 6th, 7th, 10th and 13th Wards of said City. Also a Representative in the said Congress for the Fifth Congressional District, consisting of the 8th, 9th and 14th Wards of said city. And also a Representative in the said Congress for the Sixth Congressional District, consisting of the 11th, 12th, 15th, 16th, 17th and 18th Wards of said City.

Also the following officers for the said County, to wit: 16 Members of Assembly, a Sheriff in the place of William Jones, whose term of service will expire on the last day of December next. A County Clerk in the place of James Conner, whose term of service will expire on the last day of December next, and a Coroner in the place of Edmund G. Rawson, whose term of service will expire on the last day of December next.

Yours, respectfully,
N. S. BENTON, Secretary of State.

Sheriff's Office, New York, August 3d, 1846.

The above is published pursuant to the notice of the Secretary of State and the requirements of the statute in such case made and provided for.

WM. JONES, Sheriff
of the City and County of New York.

☞ All the public newspapers in the County will publish the above once in each week until election, and then hand in their bills so that they may be laid before the Board of Supervisors, ahd passed for payment.

See Revised Statutes, vol. 1, chap. vi. title 3d, article 3d—part 1st, page 140. aug18

BRASS FOUNDRY.

JAMES KENNEARD & CO. respectfully inform their friends and the public that they are prepared to furnish all orders for Brass and Composition Castings, and finishing in general at the shortest possible notice.

N. B. All orders for Rail Road, Factory and Steamboat work from any distance, will be thankfully received and attended to with despatch and on reasonable terms.

☞ Patterns made to order.

JAMES KENNEARD & CO.
oct. 10 3m* 27 1-2 Chrystie st. New York.

☞ NOTICE—R. C. WETMORE & CO. RETURN their thanks to the Fire Department and Police, for the zealous exertions used by them in saving the property in the store No. 85 Water street, at the fire this evening.

R. C. Wetmore & Co. desire especially to acknowledge the aid of his honor the Mayor, in preserving their books and papers.

Tuesday Night.

PROSPER M. WETMORE, Navy Agent, begs to return his grateful acknowledgment to his Honor the Mayor,, the members of the Fire Department, and Municipal Police, for the assistance rendered him in saving all the books and papers of the Navy Agency from the fire this evening, Tuesday night.

NOTICE.

The Office of the Navy Agent is removed for the present to the back office of the store No. 11 Broad street.

PROSPER M. WETMORE, Navy Agent.

☞ All city papers please copy, and send bill.
o10 3t

NEW IMPROVEMENT.—M. H. Mansfield, of Mifflintown, Juniata Co., Pennsylvania, has invented a new CLOVER HULLING MACHINE, which is one of the best inventions of the kind now in use. This machine will hull forty bushels of seed per day. Persons wishing to manufacture them can procure the right on moderate terms from the inventor. For further particulars, address

MARTIN H. MANSFIELD,
oct. 3 3t* Mifflintown, Juniata Co. Pa.

COPPER SMITH!—The subscriber takes this method of informing the public that he is manufacturing Copper Work of every description. Particular attention is given to making and repairing LOCOMOTIVE tubes. Those at a distance, can have any kind of work made to drawings, and may ascertain costs, &c., by addressing L. R. BAILEY, cor. of West and Franklin sts., N. Y.

N. B.—Work shipped to any part of the country.
45to2dv18*

ELECTRICITY.

SMITH'S CELEBRATED TORPEDO, OR VIBRATING ELECTRO MAGNETIC MACHINE.—This instrument differs from those in ordinary use, by having a third connection with the battery, rendering them much more powerful and beneficial. As a curious Electrical Machine, they should be in the possession of every one, while their wonderful efficacy as a medical agent, renders them invaluable. They are used with extraordinary success, for the following maladies.

Rheumatism—Palsy, curvature of the Spine, Chronic Diseases, Tic-doloureaux, Paralysis Tubercula of the brain, heart, liver, spleen, kidneys, sick-headache.

Toothache—St Vitus dance, Epilepsy, Fevers, diseates of the eye, nose, antrum, throat, muscles, cholera, all diseses of the skin, face, &c.

Deafness—Loss of voice, Bronchitis, Hooping cough.

These machines are perfectly simple and conveniently managed. The whole apparatus is contained in a little box 8 inches long, by 4 wide and deep. They may be easily sent to any part of the United States. To be had at the office of the Scientific Americcan, 128 Fulton st, 2nd floor, (Sun building) where they may be seen IN OPERATION, at all times of the day and evening. 2

GOLD PENS!!—In consequence of the increased facility afforded by machinery for the manufacture of my GOLD PENS, I am enabled to furnish them to the Trade, at a much less price than they have heretofore obtained them through my Agent.

Those purchasing direct of the manufacturer will have the double advantage of the lowest market price, and the privilege of returning those that are imperfect. In connection with the above, I am manufacturing the usual style of PENHOLDER, together with my PATENT EXTENSION PENHOLDER with PENCIL. All orders thankfully received, and punctually attended to. A. G. BAGLEY,
sept. 26 tf 189 Broadway, N. Y.

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the Office of the Scientific American, 128 Fulton st, three doors from the Sun Office. Designs, DRAWINGS of all kinds for PATENTS, &c., also made, as above, at very low charges.

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Polishing Diamonds.

Amsterdam is much engaged in manufactures, and some of them are peculiar to the country. One of the most curious of these is that for the polishing or cutting of diamonds. There are several in the city, and they are exclusively the property of the Jews, who are quite numerous. In the lower story of a large building were six or eight horses, driven round and round by a number of boys, and turning a large wheel. From this I ascended a narrow and steep stairway, lined with dust, smut and cobwebs, to the second floor. Here were about forty workmen, seated at their benches round the sides of the room. The large wheel below turned four small cylinders in the middle of this room, and from these, bands ran to all the benches, and kept in motion a number of circular iron plates, horizontal and just even with the surface of the table. The superintendent sat in the centre, busy at his work, and overlooking the room. He spoke English, and took much pains to explain and show me the the whole process.

The flat plate of soft iron is about ten inches in diameter, and burnished with a file or piece of coarse sandstone, so as to be full of fine lines, radiating from the centre. This lasts a workman one or two days, and must then be prepared once again. The rough diamonds are small, irregular, round pebbles, just about the size of the shot a sportsman is accustomed to use, from the smallest size to buckshot.—The workman takes a small copper cup, one inch in diameter, which is fastened to a strong wire, and fills it with a composition of zinc and quicksilver. This composition, when hot, has the consistency of wax, and is easily moulded into any shape. The workmen filled a cup and rounded it off with a flat piece of iron and his hand—an experiment which, he told me, would be difficult for an inexperienced person to try without burning his fingers, but upon his horny hand the red hot metal made no impression. When finished, it looked just like an apron upon its stem, with the diamond partially imbedded in the apex.

The whole was then plunged into cold water, and the stone was firmly held in its place by the solid zinc, and ready for polishing.—This acorn of zinc and diamond is then fastened firmly in an iron clamp, and the point put down upon the metal plate, which is whirling round and grinds it off. Sometimes a weight of lead is put on to press it down and grind it away faster. Each workman attends two at the time, and takes them up every minute, to apply with a camel hair pencil the smallest quantity of diamond dust, which is the only substance that will not act upon them, and is more precious than gold: or to bend the stiff wire with the thumb, and form a new face. His first step is to 'make a table,' as it is called, that is, to grind down a considerable surface on one side, around which the other facets are arranged. Every diamond is here finished with sixty-four facets, and done entirely by the eye.

The workmen are employed twelve hours and finish three or four a day. The diamond merchants of Amsterdam pay from two to four dollars each for polishing. The best place for buying the rough stones is France, and the best market for selling the polished jewels is England. Any color injures the value of the stone. The clear, limpid diamond is the most valued. A workman showed me three of the same size, just finished, weighing about three carats each, half as large as a pea, and said they were worth 600 florins, that is about $90 each. Doubtless they will soon sparkle in 'marble halls,' and in happy unison with splendor and beauty; but I doubt if they will ever sparkle in more striking and brilliant contrast than when I saw them in the smutty hands of the workman.

The place was covered with smut, dust and oil, the wheels rattled, and the workmen shouted rough jokes at each other above the noise, and grinned and dashed about their different duties as merrily as ever the Cyclops could have wrought when they made the precious shield of Eneas. And now and then, the tortured diamonds sent forth a shriek, the like of what comes from filing a saw, but to which that is a mere whisper.

Manufacture of Gun Flints.

Brandon, in Suffolk, Eng., is the only place in England in which gun flints are now made to any considerable extent. The masses of flint from which the gun flints are made at Brandon are obtained from a common about a mile southeast from the town. The chalk is within six feet of the surface. The men sink a shaft down about six feet, then proceed about three feet horizontally, and sink another shaft lower down into the chalk, about the same depth of six feet, and sometimes they fall in with a floor of flint within this depth. They proceed again about three feet horizontally, and sink another shaft six feet; and so they proceed, going sometimes, to the depth of about thirty feet. By making their shafts only about six feet in depth, they are able to descend, and hand up the stone from one stage to another without the aid of any machinery;—and although a windlass, rope, and bucket might save labor, they would require capital, which the poor men who follow this occupation cannot command. They pay a rent of five shillings to the parish for every cart load, which is as much as three horses can draw, and of this they grievously complain. In the descent of about thirty feet, they generally find three floors of flint, and sometimes as many as four. At every floor of flint which they find, they excavate horrizontally for several yards, even as far as twenty yards below the chalk. The flint is in large blocks, in form much like the septaria stone. The men break the blocks into moderately sized pieces, so as to be enabled to hand them up from stage to stage. When engaged in doing this, a man places himself about half way up between two stages, so as to receive the stone from below, and hand it up to the stage above him. They sometimes sink shafts, and do not fall in with flint to repay their labor. That the flint of the best quality, and most adapted to the manufacture of gun flints, is comparatively rare, is shown by the experience of France as well as England.

Air and Air-Guns.

Air is now generally supposed to be so perfectly elastic, that one cubic inch of it, would if relieved from restraint, expand to a cubic mile, or perhaps to a thousand times that space. Common atmospheric air is constantly kept under a pressure of about 15 lbs. per inch, by the weight of the atmosphere, or body of air which surrounds the surface of the earth. If a cubic inch of air be allowed to expand to two cubic inches, or double its ordinary space, it still requires a pressure of 7 1-2 lbs. per square inch, to retain it in those limits. If a cubit inch of air be subjected to an additional pressure of 15 lbs. per square inch, it becomes reduced to one half its original volume. By another additional pressure of 30 lbs. per square inch, it becomes reduced to one fourth its original volume; and in proportion under any greater pressure. The limits to which air is capable of being condensed by compression, have not yet been discovered.—When liberated form compression, it instantly expands to an almost unlimited volume, with the same force that was required to compress it, with the exception of a difference occasioned by a loss of a part of the heat which it originally contained, but which naturally radiates from compressed air, to surrounding objects. By this may be understood the principle of air guns. If the barrel of an air gun be 16 inches long, and its calibre equal to a square inch, then a force or pressure of 240 lbs. would be required to compress the air ordinarily contained in the barrel, into the space of once cubic inch. The average expansive force of this inch of air, and which would be applied to a ball when being discharged, would be about 30 lbs.; and if the weight of the ball were four ounces, this force would be sufficient to project it upward to the height of 150 feet. But air guns are generally constructed with chambers capable of containing a quantity of compressed air, sufficient to expel the ball without any material diminution of force while passing through the barrel; and as it is not difficult to condense air under a pressure of 2000 lbs. per square inch, it is not surprising that balls are projected by this power, more forcibly than by the explosion of gunpowder, or by any other force that has ever been applied to that purpose.

Chicken Machine.

The chicken-hatching machine of Mr. L. G. Hoffman, of Albany, is thus described in an Albany paper: 'The machine, which we examined, is of the dimensions of an ordinary sized trunk, and is capable of hatching between 500 and 600. It is made of tin, and surrounded by water warmed to a suitable degree of temperature, by two heaters, one on either side, one heater adapted for charcoal for day use, and the other for night, by a solar lamp, burning less than a pint of damaged lard. Connected with the oven proper, is a brooding chamber, so constructed that the same heat which imparts the necessary temperature to the oven above is reflected in the chamber below, throwing a gentle warmth on the 'mother,' (a dressed sheep skin with the wool on, and capable of being fitted to a frame and of being raised or depressed to the size of the chicken) which is intended to take the place of the natural parent.

Wind Watermills in Holland.

In Holland they supply their canals with water from the meadows by windmills. Hundreds of windmills, moving whenever the wind blows, are constantly at work, keeping the meadows dry, and the canals, which are higher than the meadows, full. We have often expressed regret that the power of wind, which is not only abundant, but free for all, is so little improved in this country, not only for raising water, but for sawing, threshing and grinding. Wind wheels can now be furnished for twenty dollars each, which will, in a fresh breeze, furnish power equal to that of three or four men; a trifling expense of connecting mahinery will apply this power to mills, churns, grindstones, saws and other machinery, which ordinarily require much manual labor.

Illustration of Colors.

One of the most interesting articles which we have seen recently introduced, is an invention of Mr. Peregrine Branwhite of West Hoboken, N. Y. It consists of a neat mahogany box, within which are tastefully and judiciously arranged, 28 disks covered with silk, floss or similar material, and each presenting a distinct and different color—all the principal and most brilliant colors known and used in the arts;—each color bearing numbers, and the numbers referring to an explanatory scale on the lid of the box. The inventor has applied for a patent for the invention. A specimen may be seen at this office, and we shall probably procure an engraving, representing the arrangement, with full explanations of its general ability

India Rubber Floats.

There were exhibited, a few days since, at Jersey City, a new kind of buoys or floats, invented by an officer of the U. S. army. The contrivance is remarkably simple, consisting of two or more cylinders, made of heavy canvass, coated with 'Goodyear's insoluble rubber,' inflated and attached to baggage wagons and ordnance, for floating the same across rivers. In this experiment two small cylinders were used, and attached to a wagon weighing 1,685 lbs.; the wagon was then filled with persons, and it floated with as much buoyancy as a life boat. If the water is shoal, the wheels support the wagon, and in deep water the floats sustain it. It is attached in a few moments, and detached by removing six pieces, so that it can be drawn across the stream with cords, and attached to other wagons; and in this way an army with their baggage trains can be passed over a stream as rapidly as over a bridge.

Next What?

Animal magnetism, with all its boasted advantages in rendering people insensible to pain, appears likely to be superseded by a discovery of Dr. Morton, of Boston. It is no other than a gas or vapor, by the inhaling of a small quantity of which, the patient becomes immediately unconscious, and insensible to pain: thus giving an opportunity for the most difficult and otherwise painful surgical operations, without inconvenience.

A Railroad Hint.

A correspondent of the Mining Journal, writes as follows:

"Why not employ the force of a large steel spring, similar to the spring of a watch, to put in motion a railway train? The spring might from time to time, be wound up by the power of small stationary engines; and as watches will go twenty-four hours without winding up, why should not a locomotive, furnished with a similar source of power within itself, go for an equal space of time? Those who have seen and understood the construction of common musical snuff boxes will very readily comprehend how the force of a spring may be made to communicate to the driving wheels of a locomotive any required degree of velocity; the little fly-wheel or fan box revolving at a rate far greater than would ever be required in railway locomotion. It may be added to the above that a spring of force sufficient to carry a whole train is by no means necessary. They may be multiplied—one to every two or three cars, if expedient."

We have examined this subject long since, and ascertained that the quantity of steel requisite to make a spring or springs of sufficient power to propel a train of four double cars, one mile, would be no less than 100,000 lbs. Of course the quantity required to propel the same train at ordinary speed 24 hours, would be about 72,000,000 pounds, or 320,000 tons: rather a heavy load of driving apparatus for one train. Under this view, the correspondent of the Journal will not be impatient, if his suggested plan should not de adopted for some time to come.—[Ed. Sci. Amer.

Gen. George Washington Dixon has issued the first number of a paper under the title of the 'South American.' It will be sure to *g-o*.

THE NEW YORK

SCIENTIFIC AMERICAN:

Published Weekly at 128 *Fulton Street.,*
(Sun Building,) New York.

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanical and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements, Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER, it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

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